Volume XXI Number 11

DEC 9 1960

MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

DISEASES OF THE NERVOUS SYSTEM

A Practical Journal on Psychiatry and Neurology

NOVEMBER

1960

(CONTENTS ON PAGE 600.)

Published monthly by PHYSICIANS POSTGRADUATE PRESS, 277 Broadway, New York 7, New York
Entered as second-class matter at the Post Office at New York, N. Y.

LIFT THE DEPRESSION

Lift the depression with Marplan. Marplan has been shown to be considerably more potent than certain other amine oxidase regulators. While clinically such increase in potency has heretofore been associated with increased side effects, Marplan strikes a happy balance of potency/safety. Marplan has shown markedly fewer of the side reactions of the hydrazines (such as orthostatic hypotension, constipation, jitteriness, peripheral edema, skin rash). Moreover, throughout the extensive clinical investigations, no liver damage has been reported. Marplan is an amine oxidase regulator, however, and like all of these agents, it is contraindicated in the presence of liver or kidney disease.

Indications range from moderate to severe psychiatric disorders with associated symptoms of depression, withdrawal or regression. Marplan is also valuable as an adjunct in psychotherapy to facilitate the patient's responsiveness. *Complete literature* giving dosage, side effects and precautions is available upon request and should be consulted before prescribing.

Supplied: 10-mg tablets in bottles of 100 and 1000.

Bibliography: **1.** H. F. Darling, W. Kruse, C. F. Hess and M. G. Hoermann, *Dis. Nerv. System, 20*:269, 1959. **2.** G. C. Griffith, *Clin. Med., 6*:1555, 1959. **3.** R. B. Ford, H. E. Branham and J. J. Cleckley, *ibid.*, p. 1559. **4.** H. Azima, H. Durost, D. Arthurs and A. Silver, *Am. J. Psychiat., 116*:453, 1959. **5.** L. Alexander and S. R. Lipsett, *Dis. Nerv. System, 20*:(Suppl.), 26, 1959. **6.** H. F. Darling, *Am. J. Psychiat., 116*:355, 1959. **7.** A. L. Scherbel and J. W. Harrison, *Ann. New York Acad. Sc., 80*:(Art. 3), 820, 1959. **8.** L. O. Randall and R. E. Bagdon, *ibid.*, p. 626. **9.** G. Zbinden and A. Studer, *ibid.*, p. 873. **10.** O. Resnick, *ibid.*, p. 726. **11.** T. R. Robie, *Dis. Nerv. System, 20*:182, 1959. **12.** A. Feldstein, H. Hoagland and H. Freeman, *Science, 130*:500, 1959. **13.** L. O. Randall and R. E. Bagdon, *Dis. Nerv. System, 19*:539, 1958. **14.** W. Hollander and R. W. Wilkins, in J. H. Moyer, Ed., *Hypertension*, Philadelphia, W. B. Saunders Co., 1959, p. 399. **15.** I. Kimbell and A. Pokorny, paper read at Symposium on Newer Antidepressants and Other Psychotherapeutic Drugs, Galveston, Texas, Nov. 13-14, 1959. **16.** D. Goldman, *ibid.* **17.** J. E. Oltman and S. Friedman, *ibid.* **18.** G. Zbinden, *ibid.* **19.** G. C. Griffith and R. W. Oblath, *ibid.* **20.** H. Freeman, *ibid.* **21.** W. B. Abrams, A. Bernstein, V. D. Mattia, Jr., R. J. Floody and L. O. Randall, Scientific Exhibit, American Medical Association Meeting, Atlantic City, N. J., June 8-12, 1959. **22.** R. W. Oblath, paper read at American Therapeutic Society, 60th Annual Meeting, Atlantic City, N. J., June 6, 1959. **23.** S. L. Cole, *ibid.* **24.** I. Kimbell, Jr., paper read at Cooperative Chemotherapy Studies in Psychiatry, 4th Annual Research Conference, Memphis, Tenn., May 20-22, 1959. **25.** L. O. Randall and R. E. Bagdon, Second Marsilid Symposium, Chicago, May 8, 1958. **26.** W. B. Abrams, D. W. Lewis and M. C. Becker, paper read at the International Symposium on Catecholamines in Cardiovascular Pathology, Burlington, Vt., Aug. 23-26, 1959. **27.** H. I. Russek, *Angiology*, to be published.

MARPLAN®—brand of isocarboxazid

Marplan

ROCHE
LABORATORIES
Division of
Hoffmann-La Roche Inc.

AN OFFICIALLY APPROVED INSTRUMENT
WHICH HAS ALSO WON POPULAR APPROVAL.

the REITER

MOL-AC II

for

UNEQUALLED EASE OF OPERATION

in

A.C. SHOCK THERAPY

SAFE

The MOL-AC II, provides the highest degree of complete electrical isolation, by far exceeding official code requirements, to assure the maximum in safe operation.

EFFECTIVE

Clinical results have been uniformly excellent. Side effects are automatically reduced. The MOL-AC II is acclaimed internationally by leading physicians and institutions.

AUTOMATIC

The MOL-AC II provides a highest initial current to initiate seizure pattern with an automatic reduction to safe low voltage in every case. Instantly and automatically re-set for repeated treatments. With the MOL-AC II, doctors report they are now certain of full seizure each treatment even with large doses of muscle relaxants.

EASY TO USE

Controls are simplified — one 3-position current intensity dial and one treatment switch. Just plug in ordinary AC current and the MOL-AC II is ready for immediate use. The MOL-AC II has a handsome walnut case. Attractively priced at $100.00 complete with finest physician's bag of genuine leather and attachments.

DURABLE

Ingenious design with only one moving part. Remarkable freedom from service requirement.

Reiter leads in progressive research.

REUBEN REITER, Sc.D

64 WEST 48th STREET, NEW YORK 36, N. Y.

Why Deprol is the first drug to use in depressions

Clinical reports indicate that many depressions can be relieved by Deprol and psychotherapy, without recourse to more hazardous drugs or EST.

Deprol relieves the patient's related anxiety, insomnia and anorexia without danger of overstimulation, thus permitting better rapport to be established sooner, and facilitating more effective treatment.

Deprol acts without undue delay. Its effect can be determined quickly. If unusual cases require additional or alternative therapy, this will be quickly discernible.

Deprol can be controlled – there is no lag period of a week or two over which drug effects continue after medication is stopped. In cases where alternative therapy may be needed, it can be started at once.

Deprol is safe – does not produce liver damage, hypotension, psychotic reactions or changes in sexual function; does not interfere with other drug therapies.

Deprol®

benactyzine + meprobamate

Composition: Each tablet contains 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl) and 400 mg. meprobamate.

Supplied: Bottles of 50 light-pink, scored tablets.

Dosage: Usual starting dose is 1 tablet q.i.d. When necessary, this dose may be gradually increased up to 3 tablets q.i.d.

WALLACE LABORATORIES
Cranbury, N. J.

CD-960

Bibliography *(11 clinical studies, 764 patients)*:

1. Alexander, L. (35 patients): Chemotherapy of depression—Use of meprobamate combined with benactyzine (2-diethylaminoethyl benzilate) hydrochloride. J.A.M.A. 166:1019, March 1, 1958. **2.** Bateman, J. C. and Carlton, H. N. (50 patients): Meprobamate and benactyzine hydrochloride (Deprol) as adjunctive therapy for patients with advanced cancer. Antibiotic Med. & Clin. Therapy 6:648, Nov. 1959. **3.** Bell, J. L., Tauber, H., Santy, A. and Pulito, F. (77 patients): Treatment of depressive states in office practice. Dis. Nerv. System 20:263, June 1959. **4.** Breitner, C. (31 patients): On mental depressions. Dis. Nerv. System 20:142, (Section Two), May 1959. **5.** Landman, M. E. (50 patients): Choosing the right drug for the patient. Submitted for publication, 1960. **6.** McClure, C. W., Papas, P. N., Speare, G. S., Palmer, E., Slattery, J. J., Konefal, S. H., Henken, B. S., Wood, C. A. and Ceresia, G. B. (128 patients): Treatment of depression—New technics and therapy. Am. Pract. & Digest Treat. 10:1525, Sept. 1959. **7.** Pennington, V. M. (135 patients): Meprobamate-benactyzine (Deprol) in the treatment of chronic brain syndrome, schizophrenia and senility. J. Am. Geriatrics Soc. 7:656, Aug. 1959. **8.** Rickels, K. and Ewing, J. H. (35 patients): Deprol in depressive conditions. Dis. Nerv. System 20:364, (Section One), Aug. 1959. **9.** Ruchwarger, A. (87 patients): Use of Deprol (meprobamate combined with benactyzine hydrochloride) in the office treatment of depression. M. Ann. District of Columbia 28:438, Aug. 1959. **10.** Settel, E. (52 patients): Treatment of depression in the elderly with a meprobamate-benactyzine hydrochloride combination (Deprol). Antibiotic Med. & Clin. Therapy 7:28, Jan. 1960. **11.** Splitter, S. R. (84 patients): The care of the anxious and the depressed. Submitted for publication, 1959.

Volume XXI NOVEMBER 1960 Number 11

DISEASES *of the* Nervous System

Contents

DEPRESSIVE STATES AND AUTONOMIC HOMEOSTASIS 609
Leonard Gold and Kurt Altman

SEVERE BEHAVIOR DISORDERS WITH ABNORMAL EEG'S 616
Edward D. Schwade and Sara G. Geiger

SECRETORS OF BLOOD GROUP SUBSTANCES IN SCHIZOPHRENICS 620
Charles R. Lafferty, Wilma J. Knox and Mary L. Burkett

PATTERNS OF SOBRIETY IN THE ALCOHOLIC 622
Jackson A. Smith, Howard Herrick and Lester H. Rudy

TREATMENT OF DEPRESSION-ANXIETY 626
Edward J. Bacsik

BIPOLAR MANAGEMENT OF NEUROPSYCHIATRIC DISORDERS 629
Frank P. Pignataro and George T. Hoffmann

APPARENT HOMOSEXUALITY IN THE ADOLESCENT GIRL 634
Roswell H. Fine

ART THERAPY 638
James T. Geoghegan

METRAZOL-SUCCINYLCHOLINE CONVULSIVE THERAPY 640
Louis J. Padula and Edward J. Komora

USE OF DEANOL WITH DISTURBED JUVENILE OFFENDERS 642
John C. Mebane

A JOINT MEETING HELD IN TOKYO, JAPAN 644
INTRODUCTION—Haruo Akimoto
CLINICAL EXPERIENCES WITH MAO INHIBITORS—Haruo Akimoto, Masafumi Nakakuki, and Yukiteru Machiyama
SPINAL STIMULATION IN HEMIPLEGIAS—Sadataka Tasaka and Kazuo Omuse
RETROGRADE AMNESIA PROVOKED BY ELECTROCONVULSIVE THERAPY—Taici Miura, Morizi Okada, and Masao Okamoto

EDITOR
Titus H. Harris, M.D. 112 North Boulevard, Galveston, Texas

MANAGING EDITOR
George Bisgeir, B.S., LL.B. New York, New York

ASSOCIATE EDITORS

A. F. Bennett, M.D.---Berkeley, California
Francis J. Braceland, M.D.---Hartford, Conn.
Franklin G. Ebaugh, M.D.---Denver, Colorado
Milton H. Erickson, M.D.---Phoenix, Arizona
Hamilton Ford, M.D.---Galveston, Texas
Walter Freeman, M.D.---Los Altos, California
A. Hauser, M.D.---Houston, Texas
Louis J. Karnosh, M.D.---Cleveland, Ohio
Frank H. Luton, M.D.---Nashville, Tennessee
Wm. Malamud, M.D.---Boston, Mass.
Karl A. Menninger, M.D.---Topeka, Kansas
Hans H. Reese, M.D.---Madison, Wisconsin
Lewis J. Siegal, M.D.---New York, New York
Harry C. Solomon, M.D.---Boston, Mass.
S. Bernard Wortis, M.D.---New York, N. Y.

YEARLY SUBSCRIPTION $10.00
Foreign Subscription $11.50

THE PARKINSONIAN SCRIPT...

COGENTIN®

change anxiety and agitation to serenity

Serpasil® can often help many of your anxious, agitated patients, whether in hospital or private practice. Serpasil raises the emotional threshold to stress by a central "damping" effect, probably on the central autonomic mechanisms which control psychic and somatic reactions to stress. This stress barrier induced by Serpasil often helps change anxiety and agitation to serenity.

SUPPLIED: PARENTERAL SOLUTION: *Ampuls*, 2 ml., 2.5 mg. Serpasil per ml. *Multiple-dose Vials*, 10 ml., 2.5 mg. Serpasil per ml. *Tablets*, 4 mg. (scored), 2 mg. (scored), 1 mg. (scored), 0.25 mg. (scored) and 0.1 mg. *Elixirs*, 1 mg. and 0.2 mg. Serpasil per 4-ml. teaspoon.

SERPASIL®
(reserpine CIBA)

Complete information available on request.

2/2641MB

CIBA
SUMMIT, N. J.

NEW!

FOR YOUR

next nervous patient...

the 3-way, safe, synergistic calmative

AMRIL™

NON-BARBITURATE

combination of 3 components in low dosage acts synergistically for greater therapeutic range and less toxicity[1,2]

acetylcarbromal	200 mg.	acts at the cortical area
mephenesin	150 mg.	affects motor center to produce muscular relaxation
reserpine	0.05 mg.	depresses overactivity at the hypothalamus

AMRIL *sedates gently to produce daytime calm, nighttime rest without that "drugged" feeling*

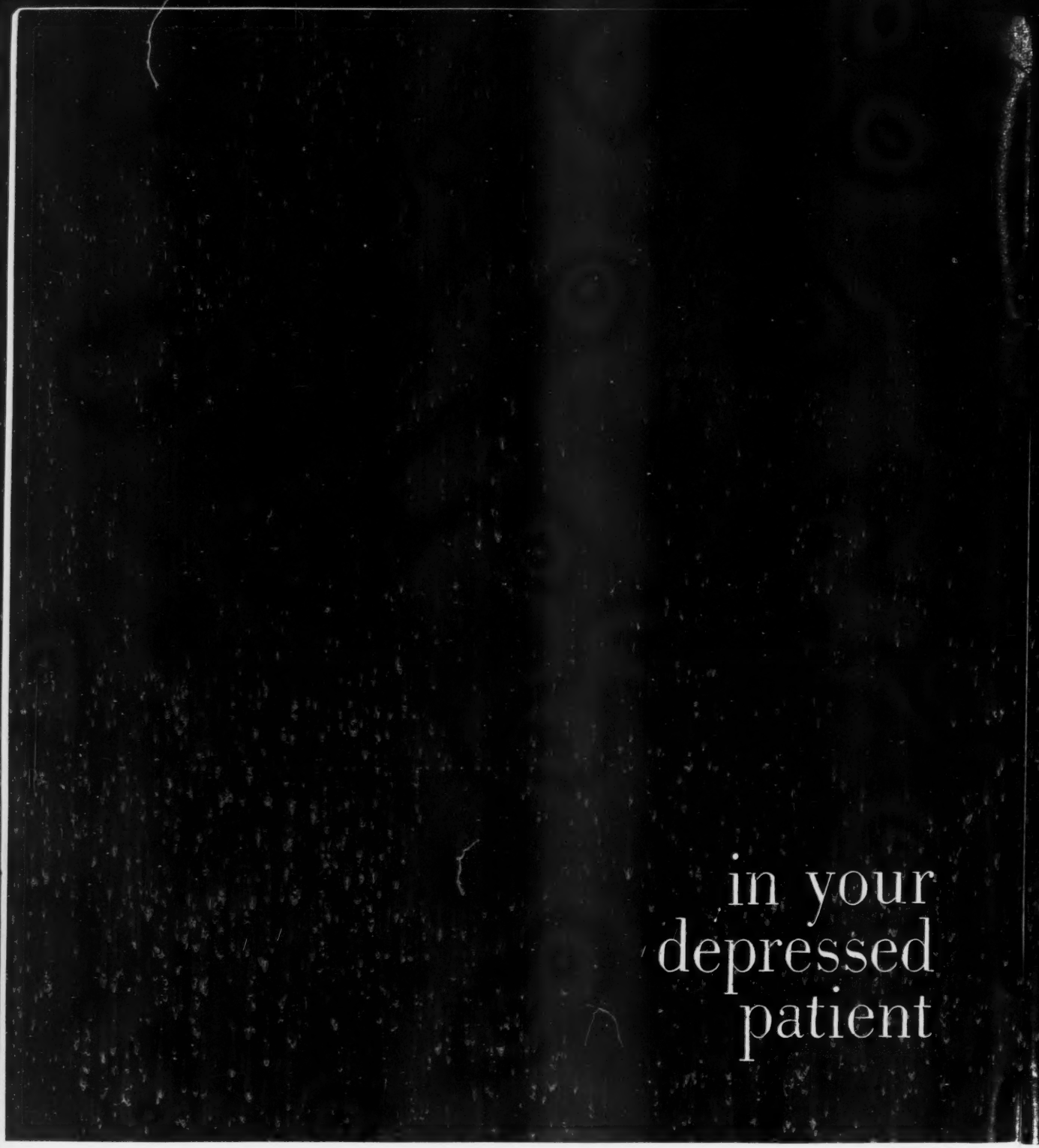
INDICATIONS: As a daytime sedative to reduce anxiety and tension in patients who show signs of nervousness, hyperexcitability and emotional upset; also to induce sleep in cases of insomnia.

DOSAGE: As a sedative, 1 AMRIL tablet two or three times daily. For sleep, 2 tablets before retiring.

SUPPLIED: Boxes of 50 and 100 tablets.

REFERENCES: (1) Batterman, R. C., Leifer, P. and Grossman, A. J.: The Advantages of a New Combination Sedative Mixture, Am. Pract. & Digest Treat. 7:1795 (Nov.) 1955. (2) Kolodny, L. A. and Fuller, R. H.: Combination Sedative in Emotionally Disturbed Office Patients, Dis. Nerv. System, 21:220 (April) 1960.

AMFRE-GRANT, INC. BROOKLYN 26, NEW YORK



remove the depression with new *a true antidepressant* Nardil™

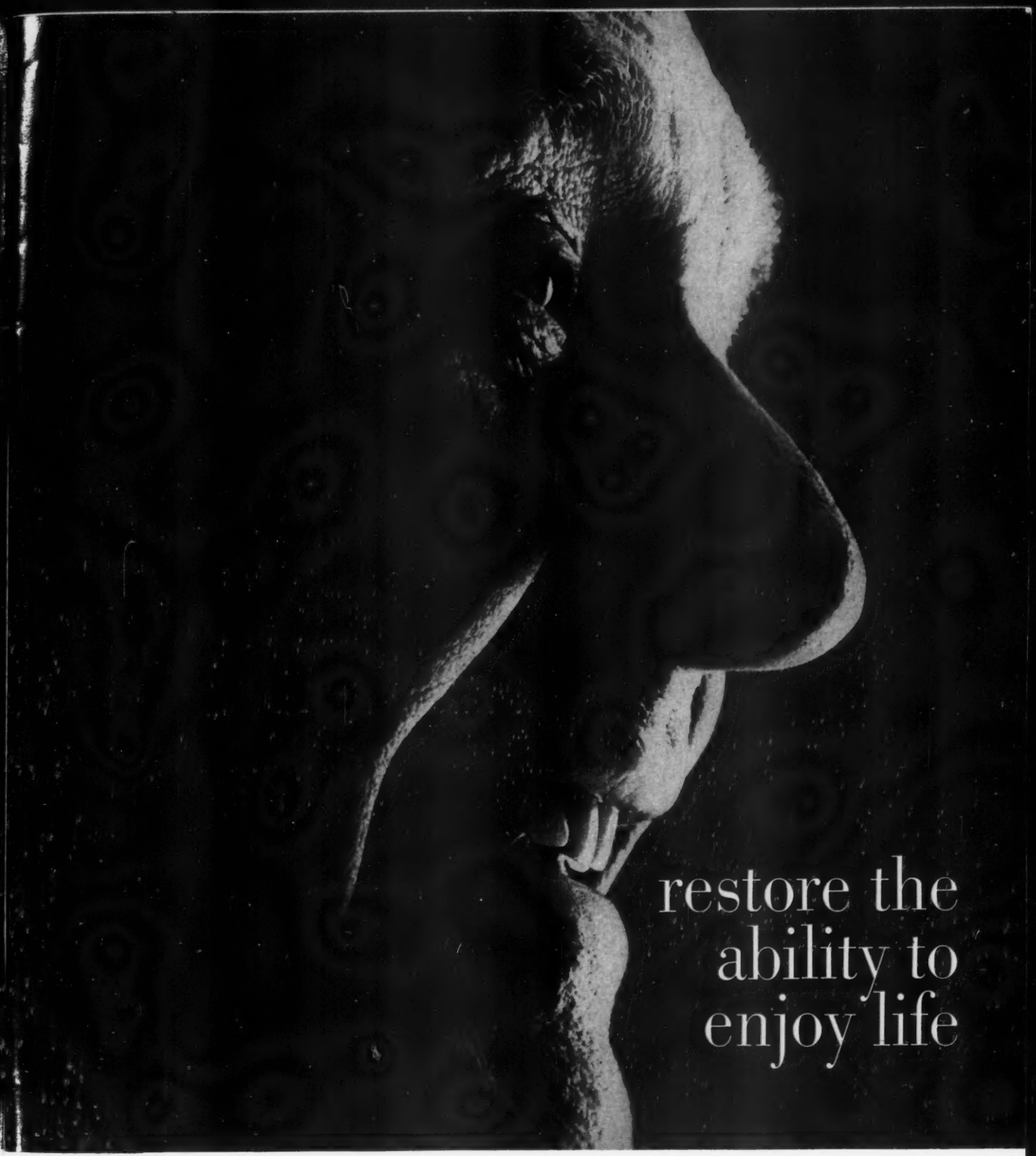
brand of phenelzine dihydrogen sulfate

rapidly effective—antidepressant response often within a few days; complete remission usually within 2 to 6 weeks, in 4 out of 5 patients.[1-10]

low toxicity—no significant reports of toxicity to liver, blood or kidneys.[1-10]

corrective—helps remove the depression, rather than merely masking the symptoms... restores the mild-to-deeply depressed patient without institutionalization and without recourse to ECT in most cases.[1-10]

simple dosage—1 tablet 3 times a day.



INDICATIONS: Mild to severe depressions, depressions associated with chronic diseases such as angina pectoris and rheumatoid arthritis. Improves the depressed phase of affective (manic-depressive) psychosis, and relieves the depression of catatonic schizophrenics, although not affecting the psychosis *per se*. SIDE EFFECTS: Occasional postural hypotension and infrequent nausea, ankle edema, delayed micturition or constipation are managed by appropriate adjunctive therapy, or dosage reduction. DOSAGE: One tablet three times a day. After remission, reduce to a maintenance level of 1 or 2 tablets a day. SUPPLIED: Orange-coated tablets, each containing 15 mg. of phenylethylhydrazine present as the dihydrogen sulfate. Bottles of 100. CAUTION: Nardil should be withheld or used with extreme caution where the patient has a history of liver disease or liver damage is present. Hypotensive patients should be under close medical supervision.

REFERENCES: **1.** Sainz, A.: *Ann. New York Acad. Sc. 80*:780, Art. 3 (Sept. 17) 1959. **2.** Thal, N.: *Dis. Nerv. System 20*:197 (May, Pt. 1) 1959. **3.** Saunders, J. C., Kline, N. S., *et al.*: *Am. J. Psychiat. 116*:71, 1959. **4.** Arnow, L. E.: *Clinical Med. 6*:1573, 1959. **5.** Dickel, H. A., *et al.*: *Clinical Med. 6*:1579, 1959. **6.** Dunlop, E.: *Rhode Island M. J. 42*:656, 1959. **7.** Sainz, A.: *Dis. Nerv. System 20*:537, 1959. **8.** Sarwer-Foner, G. J., *et al.*: *Canad. M.A.J.* (in press) 1959. **9.** Hobbs, L. F.: *West Virginia M. J.* (in press) 1959. **10.** Dunlop, E.: *Dis. Nerv. System* (in press) 1959.

WARNER
CHILCOTT
MORRIS PLAINS, N.J.

Today she is a babysitter—with her own grandchildren. Yet even a generation before she might never have known the joys of marriage and family. Here is a story shared by thousands who lead active lives today because of modern anticonvulsant therapy. Rarely has the progress of medicine touched so many lives with such drama and humanity. Presented here are five distinguished anticonvulsants. They can help you give the most precious of all gifts: a normal life.

Anticonvulsants by Abbott

PEGANONE® (*Ethotoin, Abbott*)—A hydantoin of exceptionally low toxicity. Indicated for *grand mal* and psychomotor seizures.

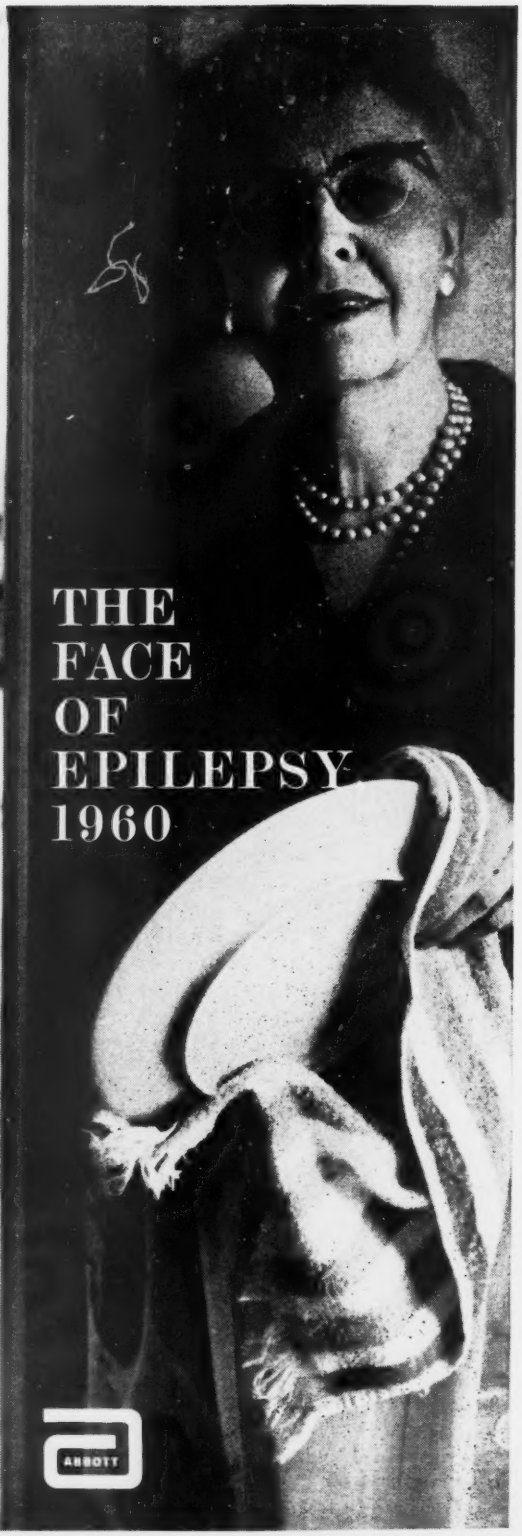
PHENURONE® (*Phenacemide, Abbott*)—Often effective when other agents fail. For *grand mal, petit mal,* psychomotor and mixed seizures.

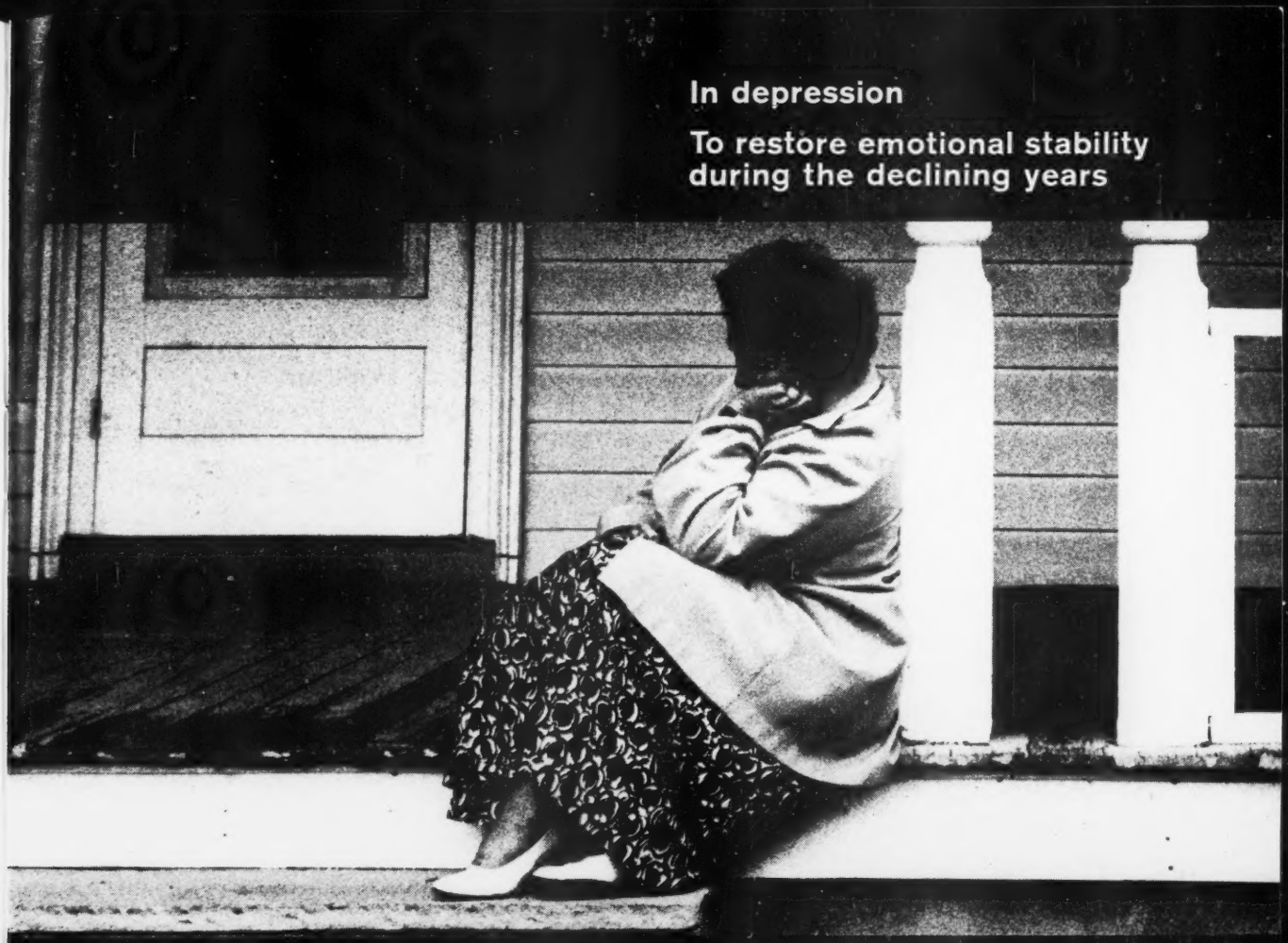
GEMONIL® (*Metharbital, Abbott*)—Relatively non-toxic. For *grand mal, petit mal,* myoclonic and mixed seizures symptomatic of organic brain damage.

TRIDIONE® (*Trimethadione, Abbott*)

PARADIONE® (*Paramethadione, Abbott*)—Homologous agents. Afford symptomatic control of *petit mal,* myoclonic and akinetic seizures.

001197





In depression

To restore emotional stability during the declining years

Tofrānil®

brand of imipramine hydrochloride

Thymoleptic

New for geriatric use

Tablets of 10 mg.

Recent studies[1-3] strongly indicate underlying depression as a causative factor, and Tofrānil as an eminently successful agent, in restoring the difficult geriatric patient to a more contented frame of mind and more manageable disposition.

1. Cameron, E.: The Use of Tofranil in the Aged, Canad. Psychiat. A. J. Special Supplement, **4**:S160, 1959. 2. Christe, P.: Indications for Tofranil in Geriatrics, Schweiz. med. Wchnschr. **90**:586, 1960. 3. Schmied, J., and Ziegler, A.: Tofranil in Geriatrics, Praxis **49**:472, 1960.

Also Available:

For the treatment of non-geriatric depression: Tofrānil tablets of 25 mg. and ampuls of 25 mg. in 2 cc. solution.

Geigy, Ardsley, New York

TO-451-60

To control agitation—a symptom that cuts across diagnostic categories

Thorazine®, a fundamental drug in psychiatry

brand of chlorpromazine

—Because of its sedative effect, 'Thorazine' is especially useful in controlling hyperactivity, irritability and hostility. And because 'Thorazine' calms without clouding consciousness, the patient on 'Thorazine' usually becomes more sociable and more receptive to psychotherapy.

leaders in psychopharmaceutical research

SMITH KLINE & FRENCH

Volume XXI NOVEMBER 1960 Number 11

DISEASES of the Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Depressive States and Autonomic Homeostasis

(A Pilot Project)

MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

LEONARD GOLD, M.D., and KURT ALTMAN, M.D.

Rationale

Depression is a clinical syndrome with psychic and somatic manifestations. Through observation and clinical investigations one could make an attempt to determine the finer correlations between these two aspects.

An outstanding feature of depression is pathologic inactivity. We speak of inactivity in the sense that individuals who develop depression are subject to reduced spontaneity, to greater inertia to movement and to a type of thinking content which leads to reduction of their behavior. Any change in depression may reveal changes in both the psychic and somatic functions.

There seems to be agreement of opinion in the literature that the activation of the sympathetic portion of the autonomic nervous system allows for the immediate and proper adaptation to environmental changes (Cannon, Gelhorn[7]). It is therefore our assumption that the sympathetic reactivity would be primarily affected in depressive states. This project was undertaken as a pilot study to make such observation.

Depressive states were investigated without regard to clinical classification and etiology (manic-depressive, reactive depression, depression in schizophrenia, etc.). The varieties of therapies employed included anti-depressant drug Deprol, doctor-patient relationship of supporting and courting type and insight producing psychotherapy.

Method

Patients were selected from the out-patient department of a large hospital according to the following criteria characterizing the depression:

1) Feelings of depression, pessimism, futility and hopelessness.

2) A thought content questioning self-worth, actual self belittling, self-worthlessness.

3) A behavior showing reduced or complete inhibitions of activity, which may be associated with agitation.

4) Symptoms of insomnia, hypochondriasis and persistent fatigue.

The mecholyl test was performed as the method of investigating the type of maintenance of autonomic homeostasis. The test was conducted as originally described by Gold[8] and later expanded by Funkenstein,[4,5] Gellhorn[6] and others. The basal blood pressure was established as the average of successive readings, (8 mm. Hg. fluctuation was allowed in scoring the mecholyl curve's closeness to the base line.) Then 0.1 mg. of mecholyl chloride per pound of body weight was injected and blood pressure readings plotted every two minutes for 24 minutes. When the patient recovered, he received 800 mg. Deprol and one hour later another mecholyl test (M-T) was repeated and recorded. The patient was then placed on Deprol therapy,

From the Department of Psychiatry, New York Medical College.

Deprol was supplied by Wallace Laboratories. This project was aided by a grant from Wallace Laboratories.

varying from 1600 mg. to 3200 mg. per day, depending on the patient's reaction to treatment. The patient was instructed to increase the dosage up to eight tablets a day, depending on how he felt. He was seen regularly once weekly for supportive psychotherapy or manipulation of the environment or insight therapy. After a period of treatment of four to five weeks, the M-T was repeated. The M-T was given in each instance by the same individual.

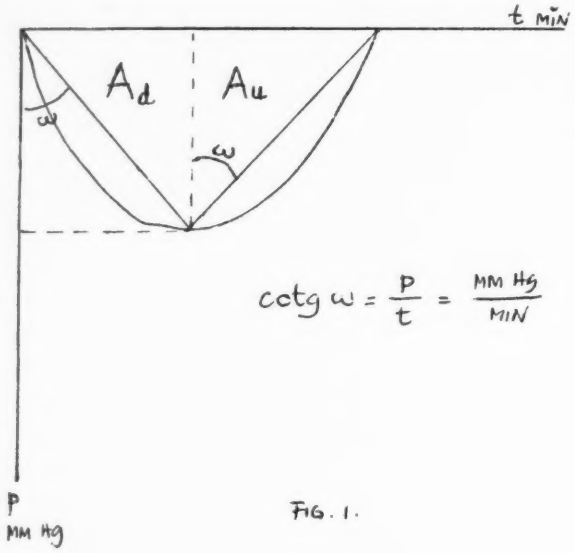
During the patient's first visit, the MMPI test was administered to evaluate the personality tendencies and pathologic and depressive tendencies independently of the clinical criteria. The psychologist did not know the clinical criteria nor the evaluation of the individual patient. The percentile of depressive state was recorded, along with other pathologic findings.

The attitude of the doctor most frequently involved with the patient was recorded. His attitude was characterized as either toward the patient (empathic) or negative to patient. This factor was considered an important part of the therapeutic armamentarium.

The means of scoring the mecholyl curve requires some clarification in order to reach clearer communications between the various researchers using the M-T. Gold and Altman[1] began to score the M-T curve in terms of rates of fall and rise and through the area bounded by the curve and the basal line. Funkenstein and Gellhorn modified these methods. Feinberg[3] in his critique of the Funkenstein test brought out the varieties of scoring methods. An attempt is made in this project to develop further accuracy in the scoring system.

The mecholyl curve, like any other similar type curve, has the following characteristic features:

1) *The gradient* signifies the speed with which the fall or rise in B.P. occurs. It is expressed in a ratio of pressure/time (mm. Hg./minutes). The larger this value, the greater the gradient. (The p/t ratio expresses the cotangent of the angle enclosed by the pressure gradient and the ordinate, becoming smaller, i.e., acute, if the ratio increases). Significant changes in our gradients are those greater than 1 mm. Hg./min. (Fig. 1).



Gradients affecting area.

2) *The area* indicates the size or volume of the process and is dependent upon the absolute values of time and pressure. On rough approximation the area is expressed by triangles which are bounded by the gradient, ordinate and abscissa. For exact calculation we employed the trapez-formula instead of using the planimeter.

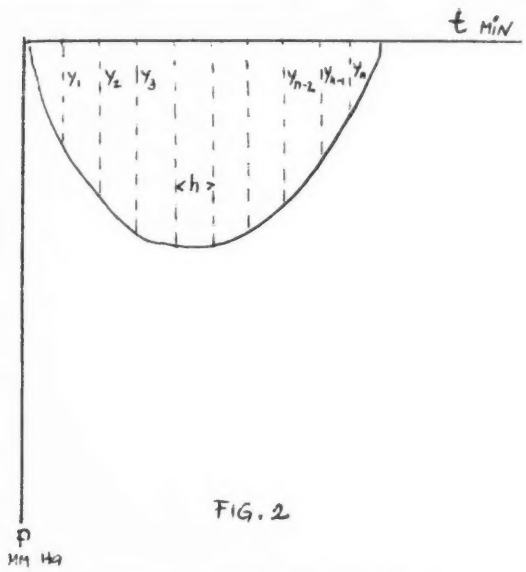
$$A = h\left(\frac{Y_1}{2} + Y_2 + Y_3 + \cdots + Y_{n-2} + Y_{n-1} + \frac{Y_n}{2}\right)$$

Since we are not particularly interested in the absolute size of the area, multiplication with "h" (this is the equal time—two minutes—between ordinates) was omitted (Fig. 2). Comparative studies with planimetric readings showed a deviation of less than 1%. One must note that equal areas can occur both with greater and smaller gradients and a diminution of areas can be caused by the gradients approaching either the ordinate (mm. Hg. pressure) or abscissa (time measure) (Fig. 3). Therefore, changes

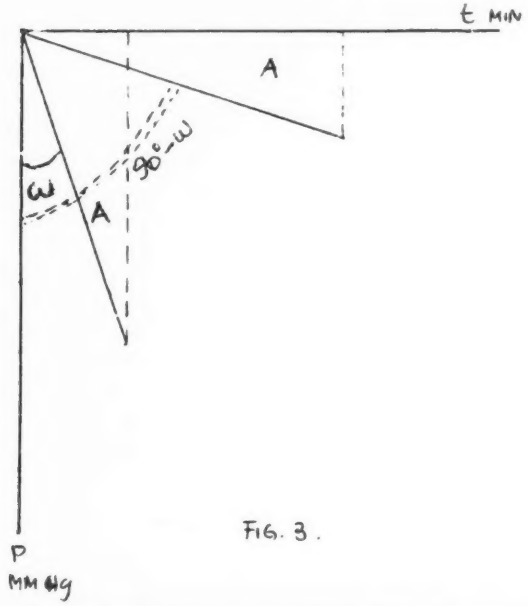
in areas can be interpreted, with significance, chiefly where gradients do not change. Significant changes in our areas were considered those greater than 10%.

Taking into consideration these mathematical formulations, the curve was scored and given the following physiologic interpretations:

1. The gradient is expressed in the rate of fall or rise in systolic B.P.



Trapez-formula applied to measuring area.



Equal areas in varying gradients.

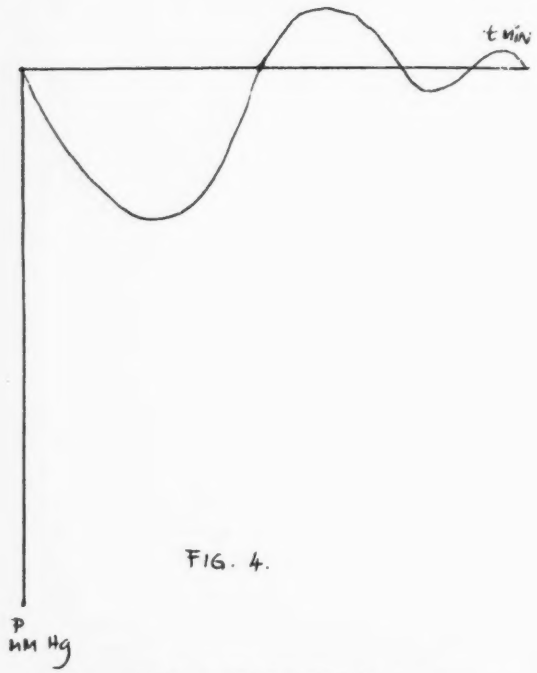
2. The area was considered as consisting of the area bounded by the down grade (Ad) and the area bounded by the up grade (Au). The total area of the curve was the sum (A = Ad + Au) (Fig. 1).

3. In the first place, the changes in gradients were considered significant. However, when there was no change in gradient, the change in Ad or Au was considered the significant score.

The results of the M-T scoring were interpreted as follows: 1) Significant being the *changes* in the scores for the curves, not the scores alone. 2) The changes in scores noted were those between the first test and the test one hour after 800 mg. of Deprol; and the changes between the first test and the one after therapy. 3) An increase in the rate of drop of B.P. was considered a sign of increased parasympathetic excitability; a decrease, a reduction of excitability; increase scored +, decrease —, and no change in rate 0. 4) With no change in down rate, the Ad was scored + if increased in size, scored — if decreased in size. 5) Increased up rate scored + as a sign of increased sympathetic reactivity, decreased up rate shown as —, no change 0. 6) With no change in the up rate, the Au area was + if the area decreased in size. A decrease in the volume of the process required to reach the original balance at the basal line indicates greater potency of sympathetic activity as it exists at that moment. An increased Au was scored —. 7) The type of the curve after treatment was considered + if it approached the undulating character of "normal" curves, e.g., like the normal glucose tolerance curve (Fig. 4). Otherwise, the score after treatment was —. 8) Each patient was scored + or —. in these three different ways and given a score of the total number of +'s in his M-T curve. In our present state of knowledge, it is important to use several factors in scoring and describing the M-T curve.

Results

The M-T one hour after ingestion of 800 mg. of Deprol indicates that this amount of Deprol influenced the autonomic homeostasis towards increased sympathetic reactivity in 12 of 18 patients. There is a suggestion that more of the patients who show increased



"Normal" type of physiologic curve.

sympathetic reactivity at this point will be found in the improved group.

A rather consistent finding was that the first M-T curves were of the slow ("hypotensive," according to Gellhorn) reacting type, the whole curve being below the base line and not returning to it within 24 minutes. These findings can be compared to those of Funkenstein, Gellhorn and Blumberg[2] in tests on schizophrenic, manic-depressive and other types of reactions. Funkenstein found a variety of curves. Gellhorn[9] found that his four manic-depressives had curves with large minus areas, similar to those found in our patients. Schizophrenic patients are found preponderantly with curves that are not markedly "hypotensive." The consistency of the type of curve in our patients indicates that a depressive reaction may have a characteristic M-T curve. Feinberg[3] and Gellhorn pointed up that with increasing age there will be a tendency towards "hypotensive" curves. Taking the ages of the patients into consideration, among the "depressed and improved" group, five patients were under 46 and four over 46 years of age. The first curves were *all* of the "hypotensive" type. Among the "depressed and no change" group, two were under 46 and five were over 46 years old. One of the under 46 and one of the over 46 did not have a clear "hypotensive" curve. The other five did.

The scores of the curves were tabulated into two groups, an "Improved" and an "Unimproved" (judged clinically). Table I shows the results of the changes in the M-T curves of the "improved" patients:

As Tables I and II reveal, there are clear tendencies to one type of finding with more plus criteria among the "improved" and another type of finding without plus criteria in the "unimproved" group. With the loss of depression, the curve assumes a shape similar to other types of physiologic test curves (e.g., normal glucose tolerance curve), while it does not if the patient remains depressed.

With improvement in the clinical status, the curves of some are inclined in a direction showing increase in parasympathetic excitability (+ in down rate). Also, there is a trend towards increase in the up rate (+), suggesting increased sympathetic reactivity. The decrease (+) in the area around the rise, Au, is indicative of increase in sympathetic tone or force. This increase

TABLE I

Scores of Mecholyl Curves After Treatment in "Improved" Group

Patient	Changes in Down Rate	Or Changes in Ad	Changes in Up Rate	Or Changes in Au	Normal Type Curve	No. of + Criteria
2	0	0	+		+	2
3	+		+		+	3
5	+		+		+	3
7	0			+	+	2
8	+			+	+	3
12	+			+	—	2
16		—		+	+	2
13	—		+		+	2
17	—			+	—	1

+ = increased down rate, increased up rate, presence of "normal" type curve, increased Ad, decreased Au.
— = decrease of rates, decreased Ad, increased Au, absence of "normal" type curve.
0 = no change.

TABLE II

Scores of Mecholyl Curves After Treatment in "Unimproved" Group

Patient	Changes in Down Rate	Changes in Ad	Changes in Up Rate	Changes in Au	Normal Type Curve	No. of + Criteria
15	0		0		—	0
19	0		0		—	0
1	—		+		—	1
6*	—			+(?)	—	1(?)
10	+		0		—	1
11	0		0		—	0
18	0		—		—	0

*In patient #6, the + score is questionable since the curves pre- and post-therapy were unchanged on inspection.

in force brings about earlier return of autonomic balance, after the imbalancing through mecholyl. The parasympathetic excitability, the sympathetic reactivity and tone are increased with improvement from a depression.

From Table II, we gather that in the "unimproved" group, this situation is less likely to occur. Increases in either down or up rates are the exception. No "normal" type curves exist. Signs of increased parasympathetic excitability are not evident. Likewise, the sympathetic reactivity and tone tends to remain unchanged. Only two of the patients had a 1+ score. The others had none. One of the 1+ scores was in a patient who had depression in a long-standing schizophrenic reaction.

In the "improved," the down rate was inclined to *increase* or remain unchanged with loss of depression. In the "unimproved," the trend was towards a *decrease* or no change in down rate of the M-T curve. Those that showed no change in rate, showed also no change in the length of drop of the curve. Among the "unimproved," there is the trend to no change in the up rate after treatment, while among the "improved," the up rate increases. Most of the Au areas bounded by the rise in curve were smaller after treatment in the "improved," unchanged or increased in the "unimproved."

The total area (Ad + Au) below the basal line, as utilized by others to score the curve, was also correlated with clinical results. Decreases in the total areas were more evident in the "improved" than in the "unimproved." The reduction in the "hypotensive" area bounded by the curve correlated positively with loss of depression by clinical examination.

The independently carried-out personality evaluation brought out that 37% of the patients who eventually improved showed schizoid features. Of the seven "unimproved," six showed schizoid features. On this same evaluation, the patients were given a percentile rank, showing where the depression stood with respect to the normal population (e.g., rank of 70 indicates that the individual is more depressed than 70% of the population). Eleven of the 15 patients had a rank of over 50. Four, with a rank under 50. One at 49, the lowest at 41. The improvements with therapy occurred in those with better prognosis, with less schizoid features.

The type of doctor-patient relationship appears to have some connection with improvements as would be expected. Among the nine "improved" patients, the doctor's attitude was negative to only one, while somewhat neutral at times in another instance. With the patients who finally were "unimproved," a negative attitude to them was more prevalent. Only with one "unimproved" patient was there a clear "towards" attitude.

Discussion

This preliminary study suggests certain tendencies which are sufficiently significant to stimulate further investigation. Deprol has a tendency to increase the sympathetic reactivity in the depressed patient whose autonomic homeostasis was imbalanced by mecholyl. This is a change in autonomic activity in the same direction as occurs when the patient becomes less depressed or not depressed.

It could be postulated further that with recovery from a depressive state, the patient's autonomic system comes to be more under sympathetic dominance. This is in

keeping with the thesis that increased sympathetic dominance occurs with growing readiness for action and with increased activity. These depressed patients prior to therapy showed a definite tendency towards "hypotensive" curves with slow and prolonged rates of recovery to the basal homeostatic level. Although the number of patients tested is small, the almost 100% presence of this type of curve is of significance. There seems to be a reduction in sympathetic tone and reactivity in maintaining homeostasis. Along with the diminished activity, initiative and incentive, in keeping with the pessimism and futility, one finds an autonomic balance which reacts "more sluggishly." A reduced parasympathetic excitability that was found would also fit into this picture. This indicates a total set, a total attitude expressed somatically and psychologically in a psychosomatic unity. If we postulate that a depressive state is characterized by a tendency to inactivity as a way of handling problems, we can also add that concomitantly there is a tendency to reduce sympathetic dominance in homeostasis. With the change in total set of the individual towards more activity as a pattern and as he moves out of his depression, so his autonomic system changes to increased sympathetic reactivity or tone as part of the total change. It is suggested that not only is there increased sympathetic reactivity, but with some persons there is a general increase in flexibility and reduction of rigidity. This leads to increased parasympathetic excitability in some who recover from their depression. One might postulate that reduced activity goes along with rigidity at times, while the total set for activity can bring about total increased responsivity in the autonomic system. As this "posture" of activity fluctuates, so does his psyche and his autonomics oscillate in relation to this "posture" of activity.

As pointed out above, the increase in age does not by itself explain the "hypotensive" tendency. In addition, since the patients were their own controls, corrections in the M-T curve for age were not necessary. The predominance of the "hypotensive" curve is not so much a function of the aging process as a reflection of a pattern of inactivity in depression.

A final point is made regarding attempts to standardize the scoring of the M-T curve. What is needed is an accurate form describing the curve. Once this is established, the description can be used for many different purposes, be it experimental or clinical. The description will need to be standardized. The standardization will have to take into consideration the mathematical factors involved in the description of any curve whether utilized in medicine, physics, electrical engineering, etc. Only when we have large numbers of accumulated data about how to score the curve can we begin to look for short-cuts in describing the M-T curve.

A final statement may be made regarding the heights of the basal blood pressures. One of the patients had 170 mm. Hg. basal pressure and one at 140 mm. Hg. All the others were under 140.

Summary

1. Deprol, an anti-depressant drug, tends to increase sympathetic reactivity of the autonomic system.

2. In depressive states there is a tendency to a "hypotensive" type of curve on applying the mecholyl test.

3. With recovery from a depressive state, there is a tendency to increased sympathetic reactivity and tone and at times increased parasympathetic excitability.

4. There is a suggestion, in the person with depression, of the existence of a total set towards inactivity, reflected both in somatic and psychic functioning.

---

155 East 38th St., New York, N. Y.

BIBLIOGRAPHY

1. Altman, L. L., et al.: Cardiovascular Responses to Acetyl B Methyl Choline in Mental Disorders. *J. Nerv. Dis.*, 97:296, 1943.

2. Blumberg, A., et al.: Relation of Mecholyl—Induced Hypotension to the Classification of Psychiatric Patients. *J. of Hillside Hospital*, 5:216, 1956.

3. Feinberg, I.: Current Status of the Funkenstein Test. *Arch. Neurol. & Psychiat.*, 80:488, 1958.

4. Funkenstein, D. H., et al.: Autonomic Nervous System Changes Following Electric Shock. *J. Nerv. & Ment. Dis.,* 108:409, 1948.
5. Funkenstein, D. H., et al.: Psychophysiologic Study of Mentally Ill Patients. *Amer. J. Psychiat.,* 106:16, 1949.
6. Gellhorn, E., and Redgate, E.: Hypotensive Drugs. *Arch. Internal Pharmacology,* 102:162, 1955.
7. Gellhorn, E.: "Autonomic Imbalance," *University of Minnesota Press,* 1957.
8. Gold, L.: Autonomic Balance in Patients Treated with Insulin Shock as Measured by Mecholyl Chloride. *Arch. of Neurol. & Psychiat.,* 50:311, 1943.
9. Nelson, R., and Gellhorn, E.: Action of Autonomic Drugs on Normal Persons and Neuropsychiatric Patients. *Psychosom. Med.,* 19:486, 1957.

THE TITUS HARRIS SOCIETY

Dr. Titus H. Harris, editor-in-chief of *Diseases of the Nervous System,* received a singular honor in Galveston, Texas, on September 17, 1960. Approximately 150 of the 164 psychiatrists trained by him in the past 30 years held the first meeting of the newly formed Titus Harris Society. An all day scientific session was followed by a dinner honoring Dr. and Mrs. Harris. Dr. Abe Hauser of Houston, Dr. Harris' first graduate and president of the society stated that annual meetings are to be held in various Texas cities.

The department of neurology and psychiatry of the medical center of the University of Texas was established in 1926 with Dr. Harris, assistant professor of medicine, as head. In 1930 this department was certified by the American Board of Psychiatry and Neurology as a graduate training center.

In January 1940 the first issue of *Diseases of the Nervous System* appeared with Titus H. Harris as its editor-in-chief. It has appeared monthly under Dr. Harris' editorship ever since.

Severe Behavior Disorders with Abnormal Electroencephalograms

EDWARD D. SCHWADE, M.D., and SARA G. GEIGER, M.D.

The explosive occurrence of violent behavior in young people, whether it is of minor or major importance, has become increasingly challenging to students of behavior and alarming to the public in general. The subject has perplexed psychiatrists, psychologists, and jurists for many years. Social welfare agencies and behavioral clinics (adult and children's) have inquired into the problem very carefully. The experimental neurophysiologists have been investigating the cause of this abnormal behavior. The problem becomes one of concern in the maintenance of public health, welfare, and protection of society. Proper care for those afflicted with this disorder is not definitive but is of the utmost importance, as is early identification of these individuals. This subject often becomes a problem in medical jurisprudence. The judge, district attorney, and council need to know the answer for the "Why and what is to be done?"

The source material in this study comes mainly from the Milwaukee County Guidance Clinic, Variety Club, Mt. Sinai Epilepsy Center, and private practice. Most referrals were primarily from parents, the Milwaukee County Children's Court, the Youth Aid Bureau, schools, and other agencies in the community dealing with children and young adults presenting problems of adjustment.

The present group of patients studied, numbers over one thousand. Of the first 600 cases 300 were controls showing 1½% with 6 and 14 per second positive spikes or 6 or 14 per second positive spikes alone. In rechecking the controls the majority of the 1½% had "temper tantrums." One would speculate that under emotional pressure severe acting-out behavior could occur. Our first report was presented at the Third International Congress of Electroencephalography and Clinical Neurophysiology in August 1953 at Cambridge, Massachusetts and exhibited at the American Electroencephalographic Society in Chicago in June 1955.

During fifteen years of study and research it has appeared that there is a repeated, classical, aggressive type of behavior correlating with electroencephalographic findings, which occurs primarily among young people, generally recognized as a special type of severe emotional disturbance. These patients rarely had a history of epileptic seizures of any kind and there is no history of epilepsy in the families. Ages range from 18 months to 16 years with a small group of slightly older patients. The intensity of the behavioral displays, which are seen more frequently in the male, have been such as to be considered a threat to members of the family or to society at large. Destruction of the animate or the inanimate, which is violent and sudden, is a common denominator. The control by rage is so absolute that parents fear for their lives and those of others. Typical complaints are: extreme rage outbursts, larceny, arson, violent acts without motivation, sexual acts (aggressive), threats to stab, shoot, mutilate or beat, poor social adjustment (not schizophrenic), rage reactions, mutilation of animals, and total inability to accept correction or responsibility for the act.

In all of our case studies, the precipitating stimuli, when known, were found to be disproportionately small. When considered in conjunction with the resulting acts of violence, it would seem, the need to act was deep, having to do with a threat or threats to the ego, the preservation of the self. Between the episodes, these patients would be in good contact. In many instances these young people are good students, friendly, with exemplary behavior.

We have reported[3] that a constant finding in this group was emotional blunting.[11] Lack of affect for the violent act itself is always

Presented at the American Psychiatric Association Convention May 26, 1960.

present, with inability to account for his conduct. The emotional blunting and lack of affect for the act have remained constant. Partial or complete amnesia and lack of conscious, reasonable motivation for the acts is characteristic of the entire group. In most instances there appears to be a feeling in the individual that he is acting in response to a deep, undeniable, inner need, an extreme sort of compulsion which cannot be redirected. Clinically, the onset is unrestrained and abrupt; it attains maximal intensity at once, maintains the act for a comparatively short time and dissipates quickly. ("Irresistible impulse?") Consistent in the majority of these disorders is a brief period of confusion before controlled contact with the environment is reestablished. A longer period of time elapses before there is a return of this individual's normal feeling tone.

In four of the cases studied, the violence terminated in murder.[1,2] Most spectacular in these murders was the complete lack of adequate motivation. However, there were emotional pressures which were intolerable to these particular individuals. Absence of affect was especially evident.[11] In two of the murders committed, insufficient recall was an outstanding finding.

In the historical inventory there were varied emotionally traumatic experiences. In most instances, rejection and broken homes were present, with emotionally traumatic experiences in infancy and early childhood. Other emotional trauma included severe emotional problems in the family, separated or divorced parents, parental neglect or brutality, and frequent changes of homes and schools. In a large number of cases no history of significant emotional disorder in the home, school, or social environment could be obtained.

In the majority of our cases there was a poor home, school, social and interpersonal relationships. These young people are unable to accept blame or correction or attempt self discipline, and consequently many are disciplinary problems. Our psychologic testings indicate that the majority of these patients have average or above average intelligence, although usually they do not function on a level with their capacities. New learning is sometimes impaired.

Suspected etiological factors are most frequent in the following order:

1. High, recurring fevers of undetermined origin highly suspicious of encephalitis.
2. Encephalitis.
3. Brain injuries ranging from prenatal (physical or toxic) and neonatal trauma to actual brain injuries with or without skull fractures.
4. Prolonged and difficult birth (asphyxia livida).

In all instances these patients were examined physically, psychologically, and neurologically. Spinal fluid studies were done on many and blood work was done routinely. Pneumoencephalograms were made when indicated. In all cases the findings were routinely negative except for the abnormal electroencephalograms.

The following are illustrative cases:

Case 1. K.J. Born 2-6-49, this 4½ year old boy was studied because his parents were unable to control him. They feared him and considered him dangerous to himself and others.

Family background included alcoholism and public care of the children, one being feeble-minded, on the paternal side. The father was divorced and remarried. The parents of the mother were first cousins. In this marriage only the first of five children was wanted. After the oldest child was five years old the other children arrived at ten month intervals. This child, next to the youngest, was especially unwanted because he was male. He was openly and brutally rejected.

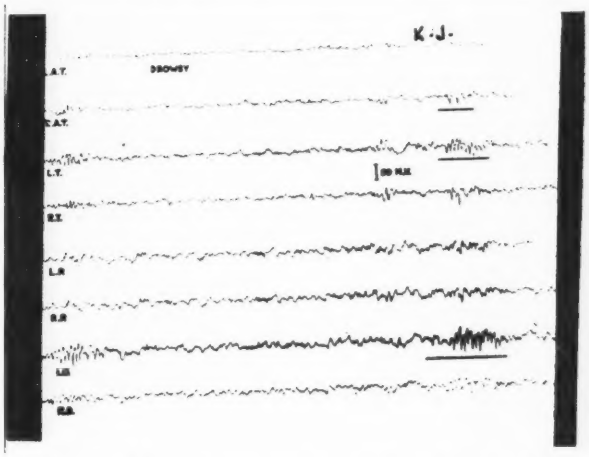


Fig. 1. K.J. Six per second positive spikes right anterior temporal, right temporal and right occipital. Fourteen second positive spikes left temporal, left occipital.

Behavior was violent, overactive, and destructive. He stomped on the stomach of his sister, stood at windows and seemingly without volition thrust his fist through a pane. Extreme physical activity,[13] short attention span, rages, hitting without apparent motivation, and threatening with a butcher knife while wandering at night were reported. He was especially hostile to his mother and evidenced little if any feeling when she or others were hurt.

Physically, findings were negative; intellectually he was high average to superior in intelligence. He responded to medication and psychotherapy but no lasting improvement was noted until he was removed from the home. At first in school he was a very poor reader. Psychotherapy, medication, and remedial reading tutoring have made it possible for him to effect a social, emotional and educational adjustment after placement of four year duration with a small group of children. He has had no medication for two years and at 10½ his behavior is on a par with those in his age group. He is able to meet emotional stress.

Case 2. D.R. Born 2-6-38, this 10-year-old youth started a fire endangering his school and church. He spent considerable time daydreaming and would retreat from the usual contacts of boys of his age.

Parental background was negative. The boy was placed in nursery school from 2 to 4 years of age, in kindergarten from 4 to 6 years of age, as the oldest of five, was expected to behave on an adult level and assume adult responsibilities. From early childhood on he was destructive at home and hostile toward his mother. Physically, findings were within the normal. Intellectually he was superior but was unable to utilize his capacity. From the psychiatric standpoint he was psychotic having set the fire in response to voices. Feeling tone was blunted. The emotionally flat mother could not accept her son's illness and she could not accept therapy. Stress was placed upon treating the psychosis in an outpatient setting. Later he achieved one friend but never mingled with his age group. With therapy his adjustment at home improved markedly. After his second year in high school he entered an order, completed high school, but found the life too confining. At present at 22 years of age he is working in a department store. No difficulties in adjusting have been noted.

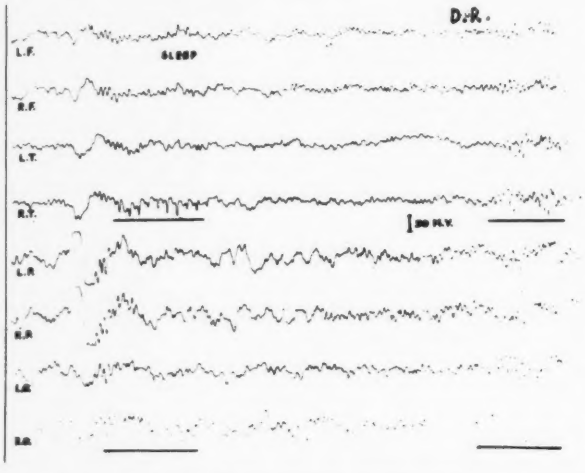


Fig. 2. D.R. Six per second positive spikes right temporal—right occipital. Fourteen per second positive spikes right temporal—right occipital.

Case 3. H.H. Born 8-29-38 this 13-year old boy impulsively shot and killed his mother. There is no history of illness or accidents. His social adjustment and school progress were excellent.

The parental relationships were poor because of the father's excessive drinking. In his family the men were reported to have had violent tempers. The mother dominated. The boy gained approval by helping in the home and on the grounds.

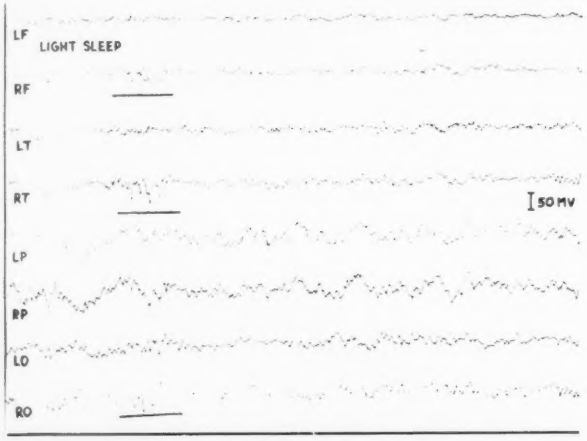


Fig. 3. H.H. The record above demonstrates only 6 per second positive spikes in the right temporal, right occipital areas; however, other records obtained on 7-8-52, 7-15-52, and 11-19-52 were identical, with six and 14 per second positive spikes, occurring in waking as well as in light sleep, deep sleep, and hyperventilation.

Prior to the shooting the mother had threatened to deprive this boy of his only meaningful relationship, his boy friend. When studied there was lack of affect, some confusion, and total lack of ability to describe the tragedy in detail. At the time of the act he stated that he seemed to have to do it and could not resist. While in the detention home there were two aggressive outbursts without obvious cause.[15] One was described as the boy being "at white heat with hands shaking." After he was in the State School there were several violent outbursts which he described as "They are just there. Then they are gone." They occurred when he was frustrated and lost status thereby. This patient, now 22 years of age, is attending a university, is on the football team and is making a good social and academic adjustment.

In the majority of the patients, electroencephalographic studies were made at least twice and frequently serially once a month.

Monopolar[12] and occasional bipolar tracings included wake, light sleep, sleep, deep sleep, and hyperventilation. The majority of these patients (73%) show 6 and 14 per second positive spiking confined most consistently to one temporal and occipital area of the same side with occasional spread to the opposite temporal and occipital areas. Kellaway et al. have reported on the significance of the 14 and 6 per second positive spike.[15] In some instances, the spread was to all areas of one side. In 30% of the cases cited, there appeared only 14 per second positive spiking with the same focus in the temporal and occipital areas of one side. In 15%, 6 per second positive spiking appears alone, again with temporal and occipital localization and occasional spreading.

That the thalamus, hypothalamus, amygdala, and the limbic system are intimately connected with each other and to the cortex is a generally accepted concept by neurophysiologists. It is believed that the thalamo-cortical fibres allow certain emotional impulses and feeling tones to reach the cortex. There is little question that the limbic system, thalamus, hypothalamus, and amygdala are primitive structures which have not changed physiologically through the ages. MacLean[4] and Nauta[5] and Delgado[6] have demonstrated that the limbic cortex, in contrast to the neocortex has strong reciprocating connections with the thalamus and with other structures in the brain stem which are vitally important in integrating the performance of mechanisms involved with self-preservation and procreation. Dejerine and Roussy[7] in describing the thalamic syndrome, point out that unmotivated emotional lability, with rage, laughter, or crying was a common finding in thalamic disorder. F. A. and E. L. Gibbs,[8] Cress,[9] Morrison and Lindsley[10] have demonstrated that spindling found in sleep originates in the thalamus. The positive spiking of 6 and 14 per second, described in this paper is apparently a type of distorted spindling. It is suggested that the positive spike is a result of a cut-off of the negative phase, and an abrupt, sharp, positive phase results. We feel from this study, extending over 14 years, that 6 and 14 per second positive spikes originate in the thalamus, hypothalamus, limbus, or amygdala and present a separate entity.

Treatment has consisted of medication, using practically every drug used in the treatment of seizures: Dilantin, Thorazine, Tridione, Phenurone, Mesantoin, phenobarbital alone and in combination, thiamin, and Serpasil. Psychotherapy is essential. The authors believe that these patients should be treated in an out-patient facility adequately staffed or in rare instances, mostly because of community reaction, in mental hospitals rather than in a correctional or penal institution.

Correlating the clinical stories of our patients with the distinctive findings of the electroencephalogram, we have concluded that the violently disordered behavior here described is the result of thalamic, hypothalamic or amygdalic and/or limbic disease or trauma. This is not to be misconstrued as a type of epilepsy except that it resembles a seizure, which by definition is a *sudden attack*. We have further concluded from this study that this disorder should be considered a clinical entity described as organic, impulsive, compulsive physical and emotional release, during which controls are non-existent. We feel that this entity accounts for at least a segment of the serious problems occurring in young people, which are loosely described as "very emotionally disturbed young persons." We feel that this may well be the "irresistible impulse" which is described in legal textbooks and in psychiatry.

If there is no recall can the patient be responsible for his act? Can an individual "acting out" on organic disorder be held legally responsible? This poses a serious problem in forensic medicine.

REFERENCES

1. Schwade, E. D., and Geiger, S. G.: Electroencephalographic Evidence of Thalamic or Hypothalamic Disorder. *Dis. of Nerv. Syst.*, 14: 18-20, January 1953.
2. Schwade, E. D., and Otto, O.: Homicide as a Manifestation of Thalamic or Hypothalamic Disorder with Abnormal Electroencephalographic Findings. *Wis. Med. J.*, Vol. 52, 171-174, March 1953.

3. Schwade, E. D., and Geiger, S. G.: Abnormal Electroencephalographic Findings in Severe Behavior Disorders. *Dis. of Nerv. Syst.*, 17: 1, October 1956.
4. MacLean, P. D.: The Limbic System with Respects to Two Basic Life Principles. Two Basic Life Principles. The Central Nervous System and Behavior 1959 (*Josiah Macy Jr. Foundation*), page 33.
5. Nauta, W. J. H., and Kuypers, H. G. J. M.: Some Ascending Pathways in the Brain Stem Reticular Formation. Reticular Formation of the Brain. H. N. Jasper, et al., Editors. Boston, *Little, Brown & Company*, 1958 (p. 3-30).
6. MacLean, P. D., and Delgado, J. M. R.: Electrical and Chemical Stimulation of Frontotemporal Portion of the Limbic System in the Waking Animal. *EEG Clinical Neurophysiol.*, 5, 91-100 (1953).
7. Dejerine, J., and Roussy, G.: La Syndrome Thalamique. *Rev. neurol.*, 14:555, 1906.
8. Gibbs, F. A., and Gibbs, E. L.: "Atlas of Electroencephalography," Vol. II, 1952, *Addison-Wesley Press*, p. 329.
9. Cress, C. H., and Gibbs, E. L.: Electroencephalographic Asymmetry During Sleep in Patients with Vascular and Traumatic Hemiplegia. *Dis. of Nerv. Syst.*, 9:327-329.
10. Lindsley, D. R., Bowden, J., and Magoun, H. W.: Effect Upon Electroencephalogram of Acute Injury to the Brain Stem Activating System. *EEG Clinic Neurophysiol.*, 1:475, 1949.
11. Satten, J., Menninger, K., Kosen, I., Mayman, M.: Murder Without Apparent Motive. A Study in Personality Disorganization. *Am. J. of Psychiat.*, Vol. 117, July 1960, p. 48.
12. Gibbs, F. A.: Clinical Correlates of 14 & 6 ps. ps. *J. of EEG & Clinical Neurophysiol.*, Vol. 8, 1956, p. 149.
13. Knobel, M., Wolman, M. B., and Mason, E.: Hyperkinesis & Organicity in Children. *Arch. of Gen. Psychiat.*, Vol. I, Sept. 1959, p. 310.
14. Walter, R. D., Colbert, E. G., Koegler, R. R., Palmer, J. O., and Bond, P. M.: A Controlled Study of the 14 & 16 Per Second EEG Pattern. *Arch. of Gen. Psychiat.*, Vol. II, May 1960, p. 559.
15. Kellaway, P., Moore, F. J., Kagawa, N.: The 14 & 6 Per Second Positive Spike. *EEG & Clinical Neurophysiol.*, Vol. 9, 1957, p. 165.

Relationship of Secretors and Non-Secretors of Blood Group Substances in Schizophrenics and Non-Schizophrenics

CHARLES R. LAFFERTY, M.D., WILMA J. KNOX, PH.D., and MARY L. BURKETT, B.S.

The purpose of this study is to establish whether a difference exists in secretion or non-secretion of blood group substances in the saliva of chronic schizophrenics and non-schizophrenics. It was hoped that this would reveal any defect in the ability of schizophrenics to secrete blood group substances from the cells of the salivary glands.

Method

The saliva of 100 non-schizophrenics and of 110 chronic schizophrenics were examined. The blood type of each participant was determined; then the saliva of each was typed for blood group substances. The fresh saliva specimens were heated in a boiling water bath for 10 minutes, then centrifuged to remove the coagulum. The supernatant was stored in the refrigerator until tested.

A. The technique used for typing saliva, a modifiication of the method of Kabat,[1] was as follows:

1. Place 1 drop saliva in each of two wells.
2. To first well add 1 drop of Anti-A serum. To second well add 1 drop of Anti-B serum.
3. Stir for three minutes.
4. To first well add 1 drop 2% suspension of A^2 cells. To second well add 1 drop 2% suspension of B cells.
5. Stir until cells are evenly distributed.
6. Reaction occurs in 5 minutes and is read as follows:

   Either Type O or No Group Specific Substance:
   Anti-A + saliva + A^2 cells—Clumped
   Anti-B + saliva + B cells—Clumped

   Type A:
   Anti-A + saliva + A^2 cells—Inhibited
   Anti-B + saliva + B cells—Clumped

From Veterans Administration Center (Gulfport Division), Biloxi, Miss.

Type B:
Anti-A + saliva + A^2 cells—Clumped
Anti-B + saliva + B cells—Inhibited

Type AB:
Anti-A + saliva + A^2 cells—Inhibited
Anti-B + saliva + B cells—Inhibited

B. The technique for titration of blood group substance in saliva was:

1. Prepare in 0.9% saline dilutions of saliva as follows: Undiluted, 1:4, 1:16, 1:64 and 1:256.
2. Transfer 1 drop of each dilution to a series of five test tubes.
3. Add 1 drop of 1:4 dilution of Anti-H lectin to each tube and shake. Hold tubes at room temperature for 10 minutes.
4. Add 1 drop 2% suspension of O cells in 0.9% saline to each tube and shake. Hold at room temperature 5 minutes.
5. Centrifuge at 500 to 1000 rpm for 10 minutes. Twirl tubes and read immediately by microscope, if necessary.

The saliva of secretors contains H substance which neutralizes Anti-H lectin and inhibits agglutination of the test cells. The endpoint is taken as the highest saliva dilutions showing inhibition.

Results

The results presented in Table I were evaluated using the Chi Square test. Comparisons were made for differences in proportion of secretors and non-secretors, between the total schizophrenic and normal samples, between schizophrenics and normals of blood type O, and between schizophrenics and normals of blood type A. None of the three comparisons reached the .05 criterion level of significance.

Grubb and Morgan[3] have shown that all Le(a+) subjects are non-secretors. Since our data presents no evidence of differences between schizophrenic and control subjects in secretion of blood group substances in saliva, it also suggests that no differences will be found between these groups if tested for Le(+) factor.

TABLE I

Percentage of Secretors and Non-Secretors in Schizophrenics and Controls

	BLOOD GROUPS								
	O		A		B		AB		
100 Controls	No.	%	No.	%	No.	%	No.	%	Total
Secretors	27	58.7	37	78.7	5	100	1	100	70
Non-Secretors	19	41.3	10	21.3	0	0	1	50	30
Total	46		47		5		2		100
110 Schizophrenics									
Secretors	43	76.8	38	88.4	6	60	1	100	80
Non-Secretors	13	23.2	5	11.6	4	40	0	0	20
Total	56		43		10		1		110

BIBLIOGRAPHY

1. Boyd, W., and Shapleigh, Elizabeth: Separation of Individuals of any Blood Group Into Secretors and Non-secretors by Use of Plant Agglutenin (Lectin). *Blood,* IX: 1195, 1954.
2. Grubb, R., and Morgan, W. T. J.: The "Lewis" Blood Group Characteristics. *Brit. J. Exp. Path.,* 30: 198, 1949.
3. Kabat, E. H.: Blood Group Substances, Their Chemistry and Immuno Chemistry. New York, N. Y. *Academic Press,* 1956.

Patterns of Sobriety in the Alcoholic

JACKSON A. SMITH, M.D., HOWARD HERRICK, M.D.,
and LESTER H. RUDY, M.D.

An abiding problem in the medical treatment of the alcoholic is maintaining sobriety in the patient once it has been established. It is this phase of treament with which the present study is concerned.

Characteristically, the alcoholic recovers from a bout; briefly returns to the physician's office and is not seen again until a few weeks or mc ths later when he is again ill from the same cause. After the physician has had this experience on a few occasions, his interest in treating these patients wanes, and he may conclude he is wasting his time.

In an effort to clarify what factors influenced the patient to resume his drinking following an interval of abstinence, the histories of 44 out-patients (31 males and 13 females) and 18 male alcoholics committed to a state hospital were surveyed.

It was soon evident from these histories that the individual evolved a characteristic pattern of sobriety as well as of drunkenness; this paper is a description of these patterns in 62 alcoholics. The importance of an awareness of these patterns of sobriety in the medical treatment of the alcoholic is emphasized.

Out-Patient Group

These 44 patients were seen over a 24 month period; 36 could give no acceptable reason for repeating their alcoholic bouts over a period of years. The majority (of this group) tended to minimize the difficulties drinking had caused and claimed that a relative or employer exaggerated the severity of the problem.

The most frequently given reason for resuming the drinking after being sober was some variation of the following rationalization: "I drink like anybody else, if I want a drink I take one, I can take it or leave it alone." Others stated it was the "wife's nagging" or "financial worries" which lead to taking the first drink. Six of the patients answered the question by saying, "I wish I knew." Several added that after a period of abstinence they were convinced they could "drink like anyone else" and attempted to do so. This was in spite of numerous previous experiences to the contrary.

Of the 13 female patients, four attributed their drinking to their husbands. These four related their drinking episodes to the husband's being away, to his being inconsiderate, to his falsely accusing them of drinking or humiliating them socially; one patient described her husband as being "just too damned dull to endure sober."

The husbands' attitudes varied. Two of them were aggressive, fault finding, exacting and in constant conflict with the wife whether she was drinking or not. In fact both of these men were in conflict with everyone with whom they were in contact; and both had been previously married. If their wives were too long sober, it appeared these husbands would provoke more drinking by increasing the arguments.

In all of these 44 out-patients, a wife, husband or employer was as actively involved in the patient's pattern of sobriety as in the drinking bouts. The pattern of the patient's abstinent behavior was sufficiently fixed that the involved relative could usually predict when the patient was about to initiate a bout.

The ordinary reason for the private patient's appearing for treatment was the spouse, who had read or had heard of some new medicine she was anxious for the husband to try. Others were hopeful that medical persuasion would end a problem that had endured longer than the marriage itself. This periodic agreement to accept treatment also became part of the pattern of sobriety in many patients. Their acquiescence was seldom spontaneous but was motivated by a wife's threat to leave him unless the patient again attempted to alter his drinking pattern. One patient during an eight year interval had tried the aversion treatment, psy-

chotherapy, vitamins, disulfiram, Alcoholics Anonymous and a few weeks in a sanatorium.

It was remarkable how often these patients and their wives viewed medical treatment as punishment for past alcoholic behavior, rather than an effort to prevent their drinking in the future. Frequently, the patient's attitude toward treatment was something he endured to pacify his wife so that she would tolerate more drinking, after a subsequent interval of sobriety. When asked what he thought of the five types of treatment he had successfully withstood in the past, a patient's immediate reply was, "Doc, you really have to love your wife to put up with all that 'stuff.' "

Only six of this out-patient group attributed their drinking primarily to "nervousness," or an internally arising disturbance from which they sought relief by drinking. This "nervousness" was described as a feeling of apprehension and fear ("free floating" anxiety) or as a state of restlessness, boredom and dissatisfaction which was relieved by alcohol. One patient with marked liver damage, stated he drank to overcome fatigue, another blamed social isolation.

Several of this group showed an impulsive, poorly organized type of behavior whether drinking or not. The problems created by their poor judgment in turn provided occasions for more drinking. As an example, an alcoholic couple bought a home so they would "own something together." After living in the house four days, they found it "depressing." This fact, and the added responsibility, provided sufficient cause for a long alcoholic bout.

In the out-patient group, the episodes that provoked a bout were as various as the alcoholics' experiences. The time in the sobriety interval at which an event occurred appeared more significant than the nature of the event itself. As an example, immediately following a bout a patient would tolerate the abuse or threats of his wife without recourse to alcohol; but six weeks later, after the turmoil had subsided, the patient began drinking because his "wife nagged all the time."

Several patients attributed their drinking to particular problems such as an inconsiderate wife or employer or a domineering parent; characteristically, the alcoholic made no effort to correct this disturbance during his abstinence. The reasons for drinking were glibly offered, and their validity accepted without concern for the contradictions offered by reality.

In the majority of these patients, the alternating states of sobriety and drunkenness became characteristic and predictable for the individual patient. That is some patients over a period of years would average three or four bouts a year, others seldom managed more than four to six weeks away from liquor; and in the committed group, sobriety was more dependent on the environment than the patient.

The out-patient alcoholic would point out that he was "safe" for one or two months; but after that period, he frequently had trouble abstaining. It appeared that when the period of sobriety had lasted its usual time, any event whether of a type to depress or to elate the patient, would initiate a bout. Even if nothing occurred in the patient's environment to provoke drinking after the usual sobriety interval, the patient might become restless, bored or depressed, or he would impulsively drink without apparent external or internal cause.

This was best illustrated by an attorney, who after being sober one month longer than usual, while driving by a liquor store impulsively stopped, bought a pint of whiskey, then drove home and drank himself into a stupor. Some patients seemed perplexed by their own behavior before drinking; as one said, "I knew I was going to drink as soon as I got off work. I don't know why but once it was decided, I didn't worry about it anymore."

Occasionally the patient would delay a bout until some business obligation was completed, until their husband left town or until a son or daughter was sent off to school. In such instances, the environmental factors tend to delay rather than provoke the bout.

Committed Group

These 18 male patients had all been committed to a state mental hospital as chronic

alcoholics. The severity of the drinking problem in this group is shown by the fact that only four of the patients were first admissions; and the remaining 14 had been hospitalized a total of 67 times for their alcoholism. The ineffectiveness of hospitalization, as a treatment procedure in some alcoholics, is amply demonstrated by one of these patients who had been hospitalized 18 times.

With these patients the time of the last interval of sobriety outside an institution was first established and two questions relating to this period were discussed; first, what prompted the patient to stop drinking; and second, once sobriety had been established what provoked a resumption of the drinking.

The reasons for interrupting the drinking were clearly related to external pressure in each patient. This pressure was most frequently a fear of job loss or a threat of divorce or rejection by the family. The most frequent reason for terminating their abstinence was an attempt at "social drinking," usually at the suggestion of friends or relatives. Others stated discouragement, frustration or irritation lead to a drink; a few gave such answers as "nothing special, just started drinking again," "felt like I wanted a drink," "got the urge, had a few beers and started again" and "got lonesome and took a drink, that did it."

Comparison of the Out-Patients And Committed Alcoholics

As a group the out-patients were still responsive to the demands of their family or employer; their abstinence was frequently the result of a threat of a loss of one or the other of these supports. In contrast, 12 of the 18 committed patients no longer had direct family ties, all had repeatedly lost jobs because of their drinking and in essence, they were without the restraints of responsibility.

The out-patients continued to be concerned over the complications of their drinking. Such occurrences as arrest for drunkenness, temporary amnesia ("blackouts") while drinking, grand mal seizures or delirium following a bout were events of considerable concern. All but three of the committed group reported they had experienced "blackouts" for several years while drinking; and several had undergone episodes of delirium on one or more occasions. All but three of the committed patients had been arrested from one to 14 times.

The family and society continued to exert a marked influence on the non-drinking behavior of the out-patient group, although this influence was certainly less marked than in the non-alcoholic, it was a much more potent force than in the committed group. Typically being without family or employer, and the possibility of further material or financial loss, the greatest force for sobriety in the state hospital alcoholic was a controlled environment. In fact, the committed patient seemed to respond directly to his environment. If the environment prevented his drinking, he adjusted quite readily and easily to this imposed sobriety; on the other hand, if drinking was practiced and permitted, he as readily drank.

Discussion

In this group of patients it appeared that in the beginning of his drinking career the patient was influenced to abstinence by the consequence of his drinking. However, after a variable period of excessive drinking (usually 2 to 5 years) the patient evolved a pattern of sobriety which avoided conscious (or in any event realistic) consideration of the problem. This change was evidenced by the patient's either refusing to discuss his drinking when sober, denying the difficulties his excess created or histrionically protesting that since he admitted he was alcoholic, there was no need to discuss his recent drunken behavior—since he planned to drink no more.

As the patient's alcoholism became more disruptive and his illness became more obvious, the influence of the bout on his periods of sobriety became more marked and more lasting. He was becoming known as an alcoholic.

He was no longer able to terminate a bout

and continue his previous behavior pattern as though nothing had happened. The family and the employer became increasingly involved and the patient's pattern of sobriety evolved as an attempted compromise before two persisting demands—his inner needs which were temporarily relieved by alcohol and the external requirements of responsibility.

The more responsive the alcoholic to these external pressures, the longer he could maintain whatever position he achieved (maritally, professionally, socially) before his drinking prevented further success. The greater the inner need for alcohol, the more rapidly the pattern of sobriety disintegrated; and the earlier the destructive effects of the drinking became evident.[2]

During his drinking career the alcoholic evolves several patterns of sobriety. In the beginning this pattern is identical with that of the social drinker,[1] this pattern may stabilize at any point in the patient's drinking career and remain unchanged for a period of years. The out-patients accepted treatment only after a previous pattern of sobriety had broken down. They were not seeking a permanent state of sobriety, but were attempting to regain a recently lost but previously satisfactory pattern of sobriety or compromise between drinking and abstinence.

The acceptance of treatment appeared a punishment the patient would tolerate in an attempt to maintain what external security remained. This was part of his habitual behavior following a bout; this was ritual accepted to expiate guilt he was assumed to have for the pleasure of drinking.

Conclusions

1. During his drinking career the alcoholic evolves different patterns of sobriety which vary according to the severity and chronicity of his alcoholism.

2. In the beginning this pattern of sobriety is identical with that followed by the non-alcoholic drinker; later this pattern alters as the patient attempts to meet his obligations and to continue his excessive drinking. Eventually, this alcoholic pattern of sobriety breaks down and he is seen for treatment.

3. Treatment should include the physician's considering this pattern, clarifying it to the patient and attempting to alter it. Unless this is accomplished the alcoholic, following recovery from a bout, is briefly sober and then resumes his drinking according to previously established habit.

4. From these 62 histories it would appear the patient drinks in accord with the pattern of sobriety he has established rather than in response to external events. After the usual interval of sobriety has passed, the patient becomes increasingly more vulnerable and when his drinking begins, it may be attributed to any unrelated circumstance that occurred at the same time.

J. A. Smith, Illinois State Psychiatric Institute, Chicago, Illinois.
H. Herrick, Nebr. Psychiatric Institute, Omaha, Nebraska.
L. H. Rudy,, Illinois State Psychiatric Institute, Chicago, Illinois.

BIBLIOGRAPHY

1. Riley, J. W., et al.: The Motivation Pattern of Drinking. *Quart. J. of Studies of Alcohol,* 9:353-62, 1948.
2. Smith, .J. A.: Psychiatry, Descriptive and Dynamic. *Williams and Wilkins,* 1960, Philadelphia.

THE UNIVERSITY OF MICHIGAN MEDICAL CENTER

A postgraduate course in Clinical Neurology will be given March 13 and 14, 1961, at The University of Michigan Medical Center, Ann Arbor, by Dr. Russell N. DeJong and staff of the Neurology Department. Program will be sent upon request to Department of Postgraduate Medicine, University Hospital, Ann Arbor, Michigan.

Treatment of Depression-Anxiety in Office Patients with Combination of Tranylcypromine and Trifluoperazine

EDWARD J. BACSIK, M.D.

To the psychiatrist the depressed patient is usually one with a mental illness involving severe mental and physical retardation, guilt feelings, mood fixation, and a definite risk of suicide. The non-psychiatrist and particularly the general practitioner, is more often concerned with a depressed patient whose major complaint is fatigue associated with tension or anxiety, vague somatic complaints for which no organic cause can be found, and in whom the risk of suicide seems small. Whether these are the initial symptoms of psychoneurosis or psychosis, or temporary complaints that will be relieved by counseling and time, is seldom apparent. In any event, few physicians would feel justified in withholding therapy to let the clinical picture become fully developed for the sake of a diagnosis. Unfortunately, many of the drugs that have been used to control these symptoms (amphetamines, barbiturates, phenothiazines, propanediols) have produced unreliable or unsatisfactory results, and new drugs are constantly being evaluated. I have recently completed a trial of such a drug, a combination of tranylcypromine (Parnate) 10 mg. and trifluoperazine (Stelazine) 1 mg.

Tranylcypromine is trans-dl-2-phenylcyclopropylamine, a new antidepressant that has been found useful in the treatment of a variety of mild to severe depressive states,[1,2] and trifluoperazine is 10-[3-(1-methyl-4-piperazinyl)-propyl]-2-trifluoromethyl-phenothiazine, a tranquilizer that has been used extensively in the treatment of patients with anxiety.[3,4] It seemed reasonable that a combination of these drugs might prove effective in patients seen in general practice where the symptoms of depression and anxiety existed simultaneously.

In September 1959 I started using this preparation in the treatment of 16 men and 54 women. Although a considerably larger number of patients with mental or emotional distress were seen during the study period, I selected only those patients in whom depression with associated fatigue and anxiety was the major presenting complaint. The other patients, whose anxiety or depression seemed relatively "pure", were treated with tranquilizers or antidepressants alone. The youngest of the 70 patients who received the combination of tranylcypromine and trifluoperazine was 21 years old, the oldest 76 (average age was 41 years). In these patients, the symptoms of fatigue, anxiety, depression, vague aches and pains, anorexia, crying, dizziness, palpitation, insomnia, and disorganized thinking were considered psychogenic. In 50 of these patients, no indication of organic disorder could be found in their medical history, or in physical examination and appropriate laboratory tests which included, when indicated, complete blood counts, hemoglobin and hematocrit determinations, radiographic studies, urinalyses, liver function tests, and blood urea nitrogen tests. In the other 20 patients in whom these symptoms appeared, a physical or functional disorder was found which was considered a contributory factor. Twelve of these were menopausal patients, seven had a primary anemia, and one had rheumatoid arthritis. Appropriate medication was prescribed for these disorders as indicated.

The symptoms of mental and emotional distress had been present for periods of up to seven years (average 3 months), and about half of the patients had previously received various stimulants, sedatives or tranquilizers with limited success. Because tranylcypromine is a monoamine oxidase (MAO) inhibitor, and some of these compounds have been known to cause hypotension, blood pressure readings were made routinely at each visit (both standing and sitting pressures were taken). In addition, complete blood counts, and hematocrit tests were repeated in 14 patients during the course of therapy, and electrocardiograms were made

in nine patients both before and during therapy.

Initial dosage of the drug was 1 tablet (10 mg. tranylcypromine, 1 mg. trifluoperazine) twice a day (one upon arising, one five hours later) for all patients. In some the dosage was reduced to 1 tablet a day after one week's therapy. Treatment was continued for from two weeks to one month, although a few patients have continued to take the preparation intermittently for more than three months.

The evaluation of an agent used in the treatment of patients with subjective disorders like fatigue, depression, anxiety, and vague aches and pains, is extremely difficult. A successful business executive is reported to have said that he knew 50% of his advertising was valueless, and that he would be happy to cut his advertising in half and reduce his expenses if he could only find out which 50% was being wasted. Similarly, a number of patients with mental and emotional distress would probably respond to placebo medication and counseling.

If we could know in advance which patients are "placebo responders," we could doubtless reduce the amount of medication we prescribe. Unfortunately, although we may be able to predict that a certain percentage of a group of patients will be "placebo responders," we are seldom able to make such predictions confidently about individual patients. In any case, 52 (75%) of the patients treated with the combination of tranylcypromine and trifluoperazine during this evaluation experienced "marked" relief of the symptoms of depression, fatigue and anxiety, 12 (17%) experienced "moderate" relief, and 6 (8%) experienced "poor" or no relief.

Most patients in whom the drug was effective reported that they began to feel better within 48 hours as seen in these cases:

Patient #1: A 32-year-old housewife who had been under medical care for the past four years. Her most prominent and persistent symptoms were a feeling of fatigue present upon arising (in spite of a good night's sleep), a loss of interest in household duties and social activities, a need to "push herself just to keep going," and an indefiniable sense of impending disaster. Other less prominent and less persistent symptoms included: occasional aches in the back, head, or limbs, irritability, crying spells, and vague abdominal distress. Physical examination, laboratory studies, and medical history revealed no indication of organic disorder. She had failed to respond to previous treatment with tranquilizers (phenothiazines, propanediols) and stimulants (amphetamines). The patient was given two tablets of the tranylcypromine-trifluoperazine combination daily, one upon arising and one five hours later. The patient telephoned (spontaneously) two days later and said that she felt much better, that she didn't feel as tired as she had, and that she felt "much more like herself." When she returned for her checkup in one week, she was noticeably more cheerful, alert, and vivacious than on previous visits. This patient's improvement has been maintained for seven weeks on a dosage of two tablets daily. There has been no relapse and no side effects have occurred.

The satisfactory results achieved in other patients were not, of course, always as dramatic or complete. In general, however, the patients who improved noticed some lessening of fatigue and an increased sense of well being within 48 hours and optimal improvement often occurred within one week.

On the other hand, a few patients whose symptoms were, apparently, quite similar to those who improved, received little or no benefit from the drug.

Patient #2: A 27-year-old female with complaints of various aches and pains in virtually all parts of her body during the past four years. This patient's history revealed only that she had had iron deficiency anemia which had been treated successfully with iron. Although her hemoglobin and hematocrit levels were within the normal range and physical examination and laboratory tests revealed no abnormality, she continued to complain of fatigue, nervousness, pain, and insomnia. Previous treatment with tranquilizers (phenothiazines, propanediols) and sedatives (phenobarbital, glutethimide) resulted in limited, but definite, improvement. Treatment with the combination was begun at a dosage of two tablets daily (one upon arising, and one five hours later). At the end of one week's therapy, the patient reported that the drug made her nervous, increased her anxiety and insomnia, and did not relieve her fatigue. The drug was discontinued, treatment with tranquilizers (prochlorperazine) was resumed and the patient has again experienced moderate relief of symptoms.

I was particularly impressed by the effects of the preparation on the psychic distress experienced by 12 menopausal patients in

this series. Symptoms of depression and anxiety accompanying the physiological changes that occur during this period were not relieved in these patients by treatment with various sedatives and tranquilizers. Intramuscular injections of estrogens, by controlling the disordered physiology (e.g. vasomotor disturbance), seemed to control the patient's psychic distress. Periodic attempts to reduce the amount of estrogen by substituting tranquilizers or administering them concomitantly, were unsuccessful. Substitution of the combination of tranylcypromine and trifluoperazine was successful, however, and these patients have remained free of mental and emotional symptoms for the past three months. Some physiologic disorders have recurred, of course, but the patients no longer complain of them and further treatment with estrogens has not been necessary. While good results in 12 patients cannot be considered definite proof of the preparation's efficacy in menopausal patients, I feel they indicate that additional trials of the drug in such patients are warranted.

Side effects occurred in seven patients. Six complained of nervousness and insomnia (one of these patients also complained of nausea), and one patient complained of a sedative effect. These effects were controlled by reducing the dosage (6 patients) or by discontinuing the medication (1 patient).

There were no abnormal fluctuations in blood pressure and no patient reported symptoms indicative of hypotension. The electrocardiograms taken for nine patients, and the blood tests (red and white blood cell counts, and hemoglobin and hematocrit determinations) done in 14 patients, revealed no abnormalities.

Summary

A combination of tranylcypromine (10 mg.) and trifluoperazine (1 mg.) was used in the treatment of 70 patients in whom symptoms of depression (usually fatigue) and anxiety or tension were the major presenting complaints. Fifty-two (75%) of the patients experienced "marked" relief of symptoms, 12 (17%) experienced "moderate" relief and six patients experienced "poor" or no relief. Side effects included insomnia and nervousness in six (one of these patients also complained of nausea) and sedation in one patient. These effects were controlled by reducing the dosage, or by discontinuing the medication. Electrocardiograms for nine patients, and blood tests (red and white blood cell counts and hemoglobin and hematocrit determinations) in 14 patients, performed before and during treatment with the drug, revealed no abnormalities.

REFERENCES

1. Roebuck, B. E., and Maccubbin, H. P.: Treatment of Depression with Tranylcypromine, report accompanying scientific exhibit at the *13th Annual A.M.A. Meeting,* Dallas, Texas, December 1-4, 1959.
2. Petersen, M. C., and McBrayer, J. W.: Treatment of Affective Depression with Trans-dl-Phenylcyclopropylamine Hydrochloride: A Preliminary Report, *Am. J. Psychiat.,* 116:67 (July) 1959.
3. Gearren, J. B.: Trifluoperazine in Emotionally Disturbed Office Patients. *Dis. Nerv. Syst.,* 26:66 (February) 1959.
4. Ernst, E. M.: Trifluoperazine in Anxiety and Tension States. *Dis. Nerv. Syst.,* 20:300 (July) 1959.

Bipolar Management of Neuropsychiatric Disorders

FRANK P. PIGNATARO, M.D., and GEORGE T. HOFFMANN, M.D.

Over the past four years, since the introduction of the amine oxidase inhibitors, there has been a sharp upswing in the number and amount of drugs used in treating mentally and emotionally disturbed individuals, both in private practice and in institutions. With the "tranquilizers" at one end of the scale of therapeutic agents and the "energizers" at the other to supplement and facilitate psychotherapy, the physician seemed to have the chemical answers to many of his psychiatric problems.

The sum total of innumerable investigations demonstrates that neither of these classes of drugs is the final word, even when used only in the types of illness for which they would appear to be specifics, i.e.: those with symptoms of overactivity and agitation on the one hand, and on the other, those whose main feature is depression. In addition, both have been responsible for the occurrence of varying degrees of toxicity and unwanted side effects which have been a deterrent to their complete acceptance.

Nevertheless, the value of the amine oxidase inhibitors in depressed states has been clearly demonstrated, and the drugs have become an essential item in the psychiatrist's chemotherapeutic regimens. We ourselves have employed several of these drugs, but never without apprehension as to the appearance, not so much of minor side effects, but of the possibility of liver damage.

Several months ago, a new member of the group was announced. This compound, isocarboxazid (Marplan, Hoffmann-La Roche Inc.), interested us because in preliminary studies, both animal[1] and clinical (in some 3,000 patients at the time[2]), it was shown to be potent in small doses and without any apparent hepatotoxicity. Because of a real need for confirmation of the latter in order to encourage freer use of an otherwise desirable agent, we decided to administer isocarboxazid in a random series of patients with a variety of depressive states. At the same time, we planned an exhaustive program of liver function tests on each of the patients and on untreated controls in an attempt to determine definitely the effect of the drug on liver function as measured by the standard tests. This procedure of necessity would somewhat limit the number of patients (eventually 54), but in our opinion, would add to the quality and value of the study.

Shortly after its inception, the study took on a second aspect with the availability of a brand new type of chemotherapeutic agent, chlordiazepoxide (Librium, former generic name methaminodiazepoxide, Hoffmann-La Roche Inc.), and as evident from its formula (7-chloro-2-methylamino-5-phenyl-3H-1, 4 - benzodiazepine-4-oxide hydrochloride), chemically unrelated to any of the known tranquilizer groups—meprobamate, diphenylmethane, reserpine or phenothiazine. In the laboratory it had exhibited both calming and muscle relaxing qualities without autonomic-blocking or hypnotic effects, and with no inhibition of locomotor activity.[3]

At that time the recently reported[4] clinical studies of this drug had not been published, but there was already considerable evidence of its safety in humans.[5] Consequently, we took advantage of the opportunity to employ it adjunctively where severe anxiety or tension accompanied the depression or where anxiety appeared as the depression lifted, i.e., in patients with "bipolar" though commonly caused symptoms. Our experience with chlordiazepoxide alone is reported elsewhere.[6]

This is a report of our experience with isocarboxazid alone and supplemented with chlordiazepoxide, including special emphasis on the results of laboratory tests.

Materials and Method

A total of 54 private office patients with serious depression, in most of whom other treatment had failed, with several on the verge of hospitalization, were administered isocarboxazid for from one to five months.

There were 14 males and 40 females, aged 16 to over 70 years. The age distribution is shown in Table I.

TABLE I

Age	*Male*	*Female*	*Total*
71+	1	–	1
61-70	2	4	6
51-60	4	7	11
41-50	3	9	12
31-40	3	12	15
21-30	1	5	6
16-20	–	3	3
Total	14	40	54

Sixty patients were actually started on the medication, but six were discontinued within a day or two. In five, preliminary laboratory tests showed abnormalities of liver function (4) and hemoglobin (1). One showed immediate sensitivity to this as she had to other drugs.

The usual starting dosage of isocarboxazid was 20 mg. to 30 mg. daily reduced as desired results were obtained; the daily maintenance dosage was 5 mg. to 10 mg. Of the 54 patients 29 were either started simultaneously on chlordiazepoxide or the latter drug was added as tension or anxiety elements became manifest. Depending upon severity of symptoms, starting dosages were 25 mg., 50 mg., or 75 mg. daily, with maintenance reduced to the lowest level when improvement was noticeable.

The diagnoses in both groups, consisting of depression with varying components, are shown in Tables II and III.

Treatment in all cases was supplementary to basic psychotherapy, as had been true of previous medication (in 31 patients), which consisted mainly of tranquilizers, sedatives and other amine oxidase inhibitors, used alone and in various combinations. None of these were administered to the present series during the study although some of the patients did receive such adjuvants as laxatives and vitamins and in one case a diuretic.

In addition to a careful physical examination and constant observation for clinical signs of drug toxicity, blood pressures were taken in both sitting and standing positions and complete blood counts and urinalyses made before and during treatment. Each of five liver function tests (with one exception) were done from one to three times on each patient during treatment and on a control group of untreated patients for purposes of

TABLE II

Isocarboxazid

Diagnosis	No. of Cases	Excellent	Good	Fair	Poor
Depressed State, Severe	15	10	4	–	1
DEPRESSION:					
Agitated	3	2	–	1	–
Involutional	4	2	2	–	–
Postpartum	2	1	–	–	1
With Panic	1	–	1	–	–
Totals	25	15	7	1	2
Per Cent	100.0	60.0	28.0	4.0	8.0
		88.0			
		92.0			

TABLE III

Isocarboxazid and Chlordiazepoxide

Diagnosis	No. of Cases	Excellent	Good	Fair	Poor
Depressed State, Severe	8	4	2	2	
DEPRESSION:					
Agitated	4	2		1	1
Involutional	2	1		1	
Post-traumatic	1		1		
With Anxiety - Tension State	3	2	1		
With Panic	3	1	2		
Schizophrenia with Depression	5		2	3	
Acute Schizophrenic Psychosis	1				1
Paranoid Schizophrenia	1				1
Malignancy with Depression	1		1		
Totals	29	10	9	7	3
Per Cent	100.0	35.0	31.0	24.0	10.0
		66.0			
		90.0			

comparison. The tests were for: 1) alkaline phosphatase estimated by a semi-quantitative screening procedure using phosphatabs (Warner-Chilcott, Morris Plains, New Jersey), 2) total bilirubin levels determined according to the method of Evelyn and Malloy,[7] 3) cephalin flocculation, utilizing Hanger's method, 4) thymol turbidity, determined according to the method of Shank and Hoagland[8] and 5) serum glutamic oxalacetic transaminase (S-GOT) by the method of Sternberg et al.[9] Repeated S-GOT tests were completed on only 35 of the 54 patients because results in these (reported below) were such as to make continued testing appear unnecessary, and the study was terminated at this point.

The effectiveness of the medication was evaluated on the basis of patient behavior, relief of symptoms, laboratory test findings and the appearance or lack of side effects.

Results

Clinical

The results of treatment are shown in Table II (isocarboxazid alone) and Table III (supplemented with chlordiazepoxide).

The fair to excellent response was nearly the same in the two groups, 92.0 per cent and 89.6 per cent respectively. There is a much greater difference in the good to excellent results, 88.0 per cent against 65.5 per cent, undoubtedly due to the greater complexity or severity of the illnesses treated with the combined therapy.

As might have been expected, little success was achieved in the schizophrenics, two of whom became too ill for office treatment and had to be hospitalized. The good and fair responses in five were due to amelioration of the associated depression, but there was no noticeable effect on the underlying illness. This is also true of the one case of malignancy with depression.

Particularly striking are the results in agitated depression, depression with anxiety tension state and depression with panic, severe cases of which have been notably resistant to chemotherapy. Of 14 cases in all (both Table I and Table II), the effect in 11 was good to excellent and in 13 fair to excellent.

Laboratory

Initial urinalyses and blood counts, with one exception, were normal and remained so throughout the series. One alcoholic patient with initial acetone was negative after 25 days of the combined therapy, but medication was discontinued due to a renewal of drinking.

Blood pressures were invariably somewhat lowered in both groups, but again with one exception the patients did not complain of any symptoms clinically. The exception developed hypotension on isocarboxazid alone and was discontinued; on subsequent examination, blood pressure was normal and the patient had fully recovered from her depression.

A graphic presentation of the results of liver function tests done on treated and untreated (control) patients is given in Figures 1 through 5, with test values on the abscissae and percentage of tests yielding each value on the ordinates. Percentage are used to make the groups comparable, since the controls were fewer (33) and the serum glutamic oxalacetic transaminase test (S-GOT) was performed on 35 instead of 54 patients (because of normal values and conclusion of the study).

The distributions for treated and control groups are obviously similar except for the thymol turbidity values. Here the curve for the treated group appears to be biphasic, with one-third of the test giving values of 4.0 units or higher. While the data suggest that treatment with isocarboxazid (separate tests showed no effect on any of the tests with chlordiazepoxide alone[6]) is associated with a rise in thymol turbidity, this does not necessarily imply liver damage or dysfunction since levels returned to normal 1 to 3 months after termination of treatment. Moreover, the rise may be associated with elevation of cephalin flocculation. It does not appear to be associated with abnormal values for alkaline phosphatase, bilirubin or S-GOT.

All alkaline phosphatase levels fell within

the normal range except in one patient who showed 16.9 units before treatment. This patient had a concomitant carcinoma of the pancreas and expired one month later.

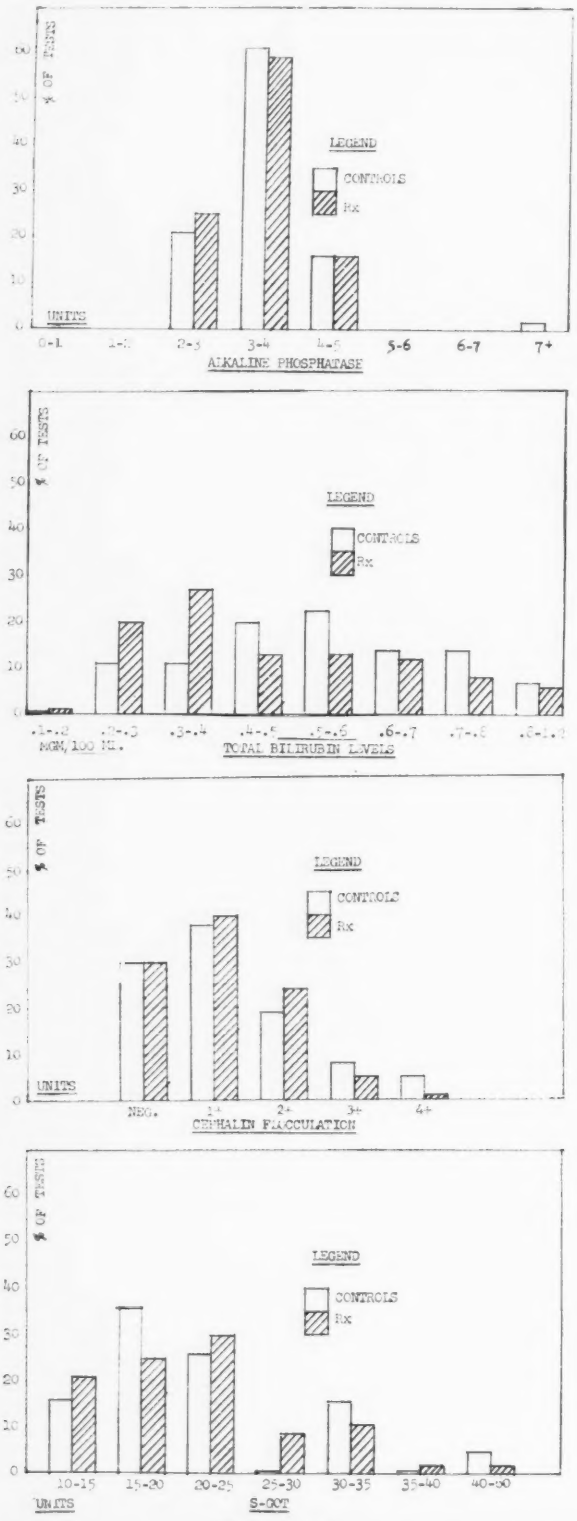
Five patients showed slight elevations of bilirubin (0.8 mg. to 1.2 mg.) None of these had any other abnormality in liver chemistry, and there was no evidence of excessive hemolysis. Subsequent tests on three of these patients showed normal bilirubin levels (the other two were not tested).

In each group there were five cephalin flocculation tests of 3+ or 4+. Attempts to correlate this with previous medication or history of hepatitis failed to show any pattern; in the treated group there was no consistent correlation of elevation with abnormal values of any other test including thymol turbidity, and none of the five treated patients showed any subsequent signs of liver failure. Elevation of cephalin flocculation alone does not seem to be a definite contraindication to treatment if other liver function tests are in the normal range. All S-GOT values in the 35 patients tested fell within accepted normal limits.

Side Effects

In a few patients at the start of the series, isocarboxazid was employed in dosages of up to 50 mg. daily. With this dosage dizziness, hypotension, constipation, weakness, nausea, decreased libido and a few cases of edema were observed. After reduction of starting doses to 20 to 30 mg., side effects were minimal consisting mainly of transient weakness and dizziness.

On an initial daily dose of 75 mg. of chlordiazepoxide, one 62-year-old male experienced ataxia which disappeared when the



Figures 1-4.

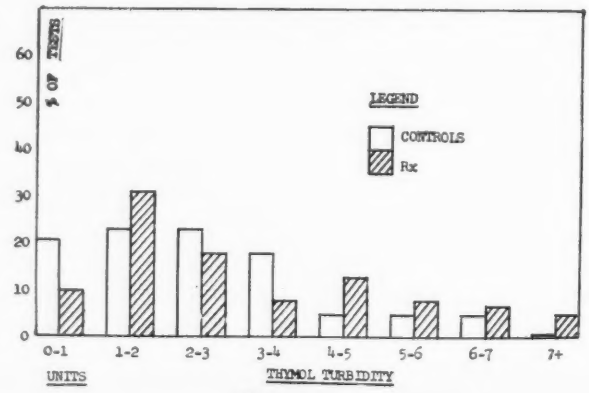


Figure 5.

dosage was lowered for maintenance to 25 mg. daily.

Discussion

As indicated by the word "bipolar," the availability of both isocarboxazid, an amine oxidase inhibitor with antidepressant qualities, and chlordiazepoxide, a new type of calming and relaxant agent, makes possible a chemical attack on many neuro-psychiatric disorders that are not amenable to therapy by either drug alone.

The effectiveness of isocarboxazid in relatively uncomplicated depression is clear from the evaluations in Table I. It is only inferentially shown that if chlordiazepoxide had not been made a part of the regimen of the 29 cases in Table II, the over-all results might not have proven favorable to the basic medication. The value of chlordiazepoxide is further emphasized by the ineffectiveness in these patients of previous tranquilizing medication.

Three brief case descriptions may help to illustrate the advantages of the bipolar approach when both medications were started simultaneously:

Case 1: A 47-year-old female had a chronic anxiety depression. After two weeks all signs of depression had disappeared and isocarboxazid was withdrawn. Within another month on chlordiazepoxide she had fully recovered and continued doing fine on a small maintenance dose.

Case 2: A 49-year-old male suffered from depression with tension. Within a few days he showed signs of lethargy and lassitude and chlordiazepoxide was withdrawn. Six weeks later, on isocarboxazid alone, the patient had recovered from his depression.

Case 3: A 34-year-old male was a victim of severe depression with agitation. He responded dramatically in one week and after three weeks on the combined medication was symptom-free.

We have also found that the optimum duration of therapy varies with the patient and that it is advisable to carry some patients on a maintenance dose for several months, since premature discontinuance of the drug may result in a reappearance of symptoms. This is true of both drugs alone or when used adjunctively, but primarily applicable to isocarboxazid because of the greater probability of the recurrence of depression. In our experience this posed no great problem because quite small maintenance doses of both were usually effective (5 or 10 mg.), and the laboratory and clinical data seemed to minimize the appearance of serious toxic, cumulative or side effects.

Nevertheless, knowledge of and experience with psychotropic drugs is most valuable whenever two or more are employed together. For example, while a tranquilizer and an amine oxidase inhibitor (or other centrally acting chemical) may enhance desired therapy by potentiating each other, certain undesirable side effects may also be potentiated. Therefore, we would advise on sound medical principles that if two agents such as isocarboxazid and chlordiazepoxide are to be given to the same patient, they should be used with discrimination and with a complete awareness of the pharmacology of each. Certainly, the smallest effective dosages should be employed and any evidence of excessive stimulation or depression calls for immediate adjustment of dosage or temporary withdrawal of one or the other drug.

Summary and Conclusions

1. In 25 patients with relatively uncomplicated but severe depression, isocarboxazid brought about improvement in 23, or 92 per cent, with good to excellent results in 22, or 88 per cent.

2. In 29 patients with depression accompanied in most cases by extreme agitation and anxiety (including 7 schizophrenics), a combination of isocarboxazid and chlordiazepoxide was employed: 26, or 90 per cent, improved, with good to excellent results in 19, or 66 per cent.

3. The adjunctive use of chlordiazepoxide with isocarboxazid made possible an improvement in 13 of 14 cases of agitated depression, depression with anxiety tension state and depression with panic.

4. Although depression symptoms were relieved to some extent in 5 of 7 schizophrenics, there was no noticeable effect on the underlying illness.

5. Urinalyses and blood counts remained normal throughout.

6. There was a general lowering of blood pressures but only one case where medication was discontinued because of hypotension; in this patient, blood pressure later became normal and the depression was relieved.

7. Repeated liver function tests (alkaline phosphatase, serum bilirubin, cephalin flocculation, S-GOT and thymol turbidity) showed no significant changes from the normal with the exception of the last named; here results were atypical as compared with the others, and in all patients who showed a rise, levels returned to normal 1 to 3 months after termination of treatment.

8. On high starting doses of isocarboxazid, up to 50 mg. daily, side effects were fairly frequent; with reduction to 20 mg. to 30 mg. daily, they were minimal, consisting mainly of transient weakness and dizziness.

9. Ataxia attributed to chlordiazepoxide (75 mg. daily) occurred in one 62-year-old patient; this disappeared with a lowered daily maintenance dose of 25 mg.

10. It is concluded that the use of isocarboxazid, an amine oxidase inhibitor, alone and in combination with chlordiazepoxide, a new calming agent, makes possible an effective bipolar approach not hitherto available in the therapy of neuropsychiatric disorders.

F. P. Pignataro, Psychiatric Consultant, Monmouth Medical Center, Long Branch, N. J., State Hospital, Marlboro, N. J.
G. T. Hoffman, Pathologist, Riverview Hospital, Red Bank, N. J.

REFERENCES

1. Randall, L. O., and Bagdon, R. E.: *Dis. Nerv. Syst.*, 19:539 (Dec.) 1958.
2. Reports on File, Hoffmann-La Roche Inc., Nutley, N. J.
3. Randall, L. O.: Pharmacology of Methaminodiazepoxide. *Dis. Nerv. Syst.*, 21:7 (March) 1960.
4. *Diseases of the Nervous Syst.*, 21:11-60 (March) 1960.
5. Reports on File, *Hoffmann-LaRoche Inc.*, Nutley, N. J.
6. Pignataro, F. P.: Clinical Experience with Librium in Private Psychiatric Practice. *Clin. Med.*, 7:1133 (June) 1960.
7. Malloy, H. T., and Evelyn, K. A.: Determination of Bilirubin with the Photoelectric Colorimeter. *J. Biol. Chem.*, 119:481, 1937.
8. Shank, R. E., and Hoagland, C. L.: A Modified Method for the Quantitative Determination of the Thymol Turbidity Reaction of Serum. *J. Biol. Chem.*, 162:133, 1946.
9. Sternberg, D., Baldwin, D., and Ostrow, B. H.: A Clinical Method for the Assay of Serum Glutamic Oxalacetic Transaminase. *J. Lab. and Clin. Med.*, 48:144, 1956.

Apparent Homosexuality in the Adolescent Girl

ROSWELL H. FINE, M.D.

There is little in the literature about homosexuality in the adolescent girl. However, mention is made in the writings of Bergler, Bowman, Caprio, H. Deutsch, English, Fenichel, Ferenczi, and Freud, and the classical studies by Henry, Kinsey, Krafft-Ebing, and Mead are important. No attempt will be made to review the literature but our focus will be upon the differentiation between *sexual deviation—homosexuality* (as defined in the *Diagnostic and Statistical Manual, Mental Disorders,* American Psychiatric Association, 1952) and *homosexual symptomatology,* as found in extensive syndrome states such as schizophrenic and obsessional reactions, or the personality disorders. Differentiation should be made between sexual deviation and the transient situational personality disorders.

At Los Guilucos, a state correctional school for girls, overt homosexuals in the true clinical sense have not been seen. Invariably, the "homosexual suspects" turn out to be other than sexual deviates, and the symptomatology described is part of another syndrome. This is in part due to the age of the girls (11 years to 18 years; median age: 15.7 years) and their marked emotional immaturity. What is seen at Los Guilucos is "ap-

From Los Guilucos School for Girls, California Youth Authority, Santa Rosa, California, and Sonoma State Hospital, Dept. of Mental Hygiene, Eldridge, California.
Read at a meeting of the Central California Psychiatric Society.

parent" homosexuality—that is, symptomatology on a behavioristic level. This is seen in the constant "acting out" by the girls, which ranges from the demonstrative behavior between "friends," carried out in a socially acceptable manner, to the unacceptable behavior of sex play, and within the "chick-vot" relationships.

"Chick-vot" relationships, by broad definition, is applied by both staff and girls to those special relationships existing among a number of the girls which take the form of a "family relationship," with a girl taking the role of a parent (child, sibling, cousin, mate or grandparent of either sex) and interacting or relating to another girl, or group of girls, playing similar or other roles. The "vot" is the boy and the "chick" is the girl.

At Los Guilucos one will occasionally hear about or read reports about sex play. For instance, a supervisor will state: "In the moment that my attention was directed elsewhere, the two girls began sex play . . ." (In the showers, in their rooms, etc.) Incidentally, with the increased sophistication of the staff and greater psychological awareness, this statement reflects a response of relatively little anxiety on the part of the staff. Only a few years ago such activity might have caused considerable concern and anxiety. This reflects a reasonable, rational down-to-earth approach. There may be mention, too, of seduction among the patients. This does occur; but in almost every instance, the "victim" is a willing participant, even if ambivalently. As reported, "threats" and "coercion" do enter into it, but calling for help is against the "Code"; to call for help means that you have sided with authority, you have "finked," you are a "square."

Sex play at Los Guilucos serves a number of purposes: 1) gratification: "a girl has to get her 'kicks'; there aren't any 'studs' (boys) around; what do you expect us to do?"; 2) defiance against authority; 3) experimentation; 4) a part of growth and development, a form of exchange in the interpersonal relationship between girls. This can be seen as a primitive, somatic way of saying, "hello, I love you," or "I'm hungry and lonely." Any or all of these factors may be involved in the manifested sexual behavior and should not be construed as a manifestation of overt homosexuality in most instances.

On occasion a new girl will arrive at Los Guilucos with a history of homosexual experience on the "outs," or stories of such a girl will arrive at the institution through the "underground communication network" either from the Juvenile Halls or the Youth Authority Reception Clinics. The girl is "well known" and has a reputation with both wards and staff by the time she arrives. This tends to cause some anxiety and uneasiness and, in addition, to certain of the wards this becomes a threat on one level, and a source of direct or vicarious excitement on another. This same experience is true when the arrival of a new ward is preceded by newspaper coverage in the community, or she has been involved in an unusual or sensational antisocial act. The assumption is made that this girl is to be considered a highly "dangerous" individual—that is, a big "vot" and an overt homosexual. In most instances this is an incorrect assumption; the notorious "public enemy #1" usually proves to be a very frightened little girl with none of the earmarks of hardened criminality or perversion. There is a vast difference between "playing at it"—sex play, a behavioral manifestation—and the definite specific clinical entity, "overt homosexuality."

Case History

A case history may amplify some of these points. Sue was a fifteen-year-old Caucasian girl admitted to Los Guilucos in January 1958, from Los Angeles County. The preceding year, Sue had been made a ward of the Court and committed to the California Youth Authority's Southern Reception Center. After a diagnostic work-up there, she was returned to the community and escaped from control of her very disturbed mother and entered into a living relationship with adult homosexual women. She was referred by the Classification Committee at Los Guilucos on her initial assignment to the Psychiatric Treatment Unit. The Classification Committee stated that she was a girl who had overt homosexual experience and was extremely flighty and impulsive. They stated that she verbalizes the desire and need for help and was anxious about the homosexual experience and her own identity. She was assigned

to a male therapist, a social worker, to be seen in individual psychotherapy twice weekly and in group psychotherapy with the same therapist.

The initial evaluation revealed that Sue could express herself freely in the interview situation. She was seen as a girl whose psychosexual development was in a confused state of flux. She called herself a "tomboy" and presented a very masculine manner of walking and talking. She found femininity fearful and disturbing to her. She stated that she enjoyed her "vot" status at Los Guilucos but wanted to change to a "chick" before she returned to the community.

From the Southern Reception Center and Clinic—California Youth Authority are notes from a summary dated 7/18/57:

"*Family History:* Sue was an only child. Parents were married in 1941 and divorced in 1949. Mother states that the cause of separation and divorce was the father's interest in another woman. The father has not remarried and is presently working as a bartender in Los Angeles. He appears to be interested in Sue and indicates willingness to help with her post-institutional planning. Sue, herself, states that she still likes her father but does not want to live with him as he wants her to behave in a manner in which she does not feel capable.

"After separation from her first husband when Sue was about 4½ years old, the mother suffered a breakdown and loss of speech for about four months. Although she was already separated from Sue's father, the mother blamed Sue for this situation rather than the events surrounding the separation. Mother married a second time the same year the divorce became final. Second husband had ulcers and spent a great deal of time in the VA Hospital. He died shortly after the mother divorced him in 1951. Mother had one child by this union. Mother then married her present husband, December 1953, and this marriage remains intact.

"Mother, stepfather, and a younger sister reside in a semi-rural area in Southern California. They rent an attractive home in a community of nice-looking homes. The stepfather is employed as an engineer in an aircraft factory and has adequate income.

"Mother states that at the time she was pregnant with her second child, there was a great deal of turmoil in the home, and the second husband had threatened to put Sue away because of her behavior. The mother placed Sue in a private institutional school but Sue was expelled from there because of fighting. In between marriages the mother worked as a saleslady and she and Sue lived with the maternal grandmother for a time.

"Sue had difficulty in public schools, did not get along there, was placed in El Retiro, Los Angeles County, did not do well in school there and was failing in all of her subjects."

The psychological report, dated July 1957: "Testing indicates that this girl is in the low range of average intelligence. She showed I.Q.'s ranging between 80, 84, 87, and 94; the spread in scores apparently being the result of her impulsiveness in terms of carelessness and also with her lack of social maturity and understanding of customs; this latter being more involved with her emotional problems than immaturity."

"The Rorschach and projectives reveal her psychosexual development is confused, with no definite identity established at this time. There is much about this girl that is like the spontaneous, exuberant ways of a child. She finds feminine sexuality fearful and disturbing to her. There is, however, much characterological femininity in her structure. She has strong affectional needs which she expresses freely. Throughout the Rorschach there was evidence of oral needs; that is, a need to be taken care of and to be dependent. She tends to deny these needs. She may still act out her anger and frustration and there is sometimes an attempt to undo hostile actions later.

"The Thematic Apperception test shows her striving to set goals for herself and her strong need for encouragement in carrying out the goals to a completion of a task."

Sue's reputation as a "vot" arrived at the Reception Center long before she and her records.

At Los Guilucos Sue had acquired 28 special incident reports; they ranged from agitating, threatening, to attempting to incite an incident. Disciplinary reports described various problem episodes: "agitating and pressuring; pounding, banging, and demanding; using vile and abusive language; threatened supervisors and talked about allowing toilets to overflow and flood the hall; window breaking; improper dress; she has worn her bra in such a way as to flatten her chest and give her a more masculine appearance; cutting her own hair, "flat top" style; making shady remarks to boys on gardening detail.

The therapist stated after five months and some 33 hours of individual therapy: "Sue has been a discipline problem since her arrival at the school. Her continual acting out in school and in the dorm resulted in her assignment during the month of May to the special adjustment dorm, De Paz. (Individual Security rooms; limited privileges.) This seemed to have lessened the pressure which she felt —partially due to her undeserved reputation as a "vot." She is an orally dependent youngster with little self-concept. She is fearful and distrustful of staff and girls and there is a manipulative quality to her superficial relationships. She attempts to assume a role which protects her form and gives her a status with the more delinquent elements. This brings her into conflict with the staff. In De Paz, we attempt to build a degree of ego strength so she might be returned to the large group and be able to withstand the pressure. Through this process we also hope to help the girl establish meaningful relationships."

The therapist further reported that Sue received support and recognition from the other girls for her "vot" role and was encouraged to continue. Her impulsiveness and inability to accept limits had caused constant difficulty with the staff.

Sue was distrustful of adults. Yet she could not voice her hostile feelings directly to the therapist or the staff, although she seemed to want to do her best to conform, despite her continual infractions of the school regulations. She continually tested the therapist.

In her third month at the institution, she was placed in the newly-formed 15-bed Therapeutic Community unit. She participated daily in the groups and seemed to be getting support from the girls on this unit. Still, she appeared highly suspicious at the meetings and had little to say in the group.

In the fourth month the therapist stated that Sue was attempting to conform more to the institution's wishes, especially in her manner of dress. Her relationship with the housemothers appeared to have improved. She related better and the therapist reported: "At times she is like a child; while things are going better for her in the institution she is verbally abusive to the therapist, consuming his gift offerings of cookies, chewing gum, and cokes hungrily and without acknowledgment. She is in constant conflict because of her need to be popular with the more anti-social group on campus and the difficulties with the staff."

A final note in the fifth month of therapy: "Sue is back in the academic school program. Her behavior on campus is more acceptable. In the interview Sue was able to express her distrust of adults more directly. She is a demanding youngster and tends to sulk and whine rather than use more direct verbal attack on the more aggressive youngsters. In the group situation Sue would like to dominate the group and use them as her audience. To other girls in the group she has considerable leadership ability, but is unable to control it."

Comment was made in regard to Sue's attempt to maintain a feminine identity and a desire to see herself as a woman. An incident was described in which she was taken to town and she proudly maintained her femininity by her softness of dress, carriage and manner. She wore a pair of earrings and was described as looking like a "real cute girl." In contrast was a "butchtop hair cut," the symbol of the "vot" of Los Guilucos. On a Santa Rosa street corner a group of boys called out to her: "Who is the girl with a body like Brigitte Bardot walking around with an Elvis Presley hair cut?" She has maintained the "top side" of her body masculine and the remainder of her body as a feminine creature. One might say that here is contrived a truly ambulatory "bi-sexual image."

In the past three years at Los Guilucos only two girls have been seen that could be considered to be overt homosexuals in a dynamic clinical sense; they had been practicing overt homosexuals before arriving at the school, and would most likely resume the same way of life upon their return to the community. Sue is *not* to be considered an overt homosexual at this time in spite of her experience before arriving at Los Guilucos. However, without adequate treatment one could certainly predict that Sue could be easily led and "seduced" into a homosexual life, and she could drift into adult life as a practicing homosexual. However, therapy appeared to tip the balance in the direction of femininity and this identity was assumed and maintained by Sue for the remaining months of her institutional stay and on her return to the community.

Dynamically, Sue is seen as an oral-cutaneous character, with a primitive disorganized ego; her defenses are tissue thin and unreliable. She acts out explosively and impulsively without provocation. She resides on the border of the primary process—this is manifested in her thinking and behavior. She is immature, lonely, clinging, and dependent. She is rebellious and resentful of external controls. She is "affect hungry" and reaches out blindly in a frantic manner; when immediate gratification is denied or is not forthcoming, she explodes with hostile impact upon the world around her, driving people away from her. She is a very anxious, confused and disturbed girl. She is easily led and influenced; she has great difficulty in learning by experience and exists for the most part within the pleasure principle. Diagnostically she can be best categorized as a borderline schizophrenic, vacillating from a frank psychotic state to a reasonably well-controlled schizoid, with acting-out propensities.

She represented a tremendous challenge to her therapist and the Los Guilucos staff; although the prognosis is guarded and the gains are small, the girl has shown some movement and growth. Sue returned to the community after several additional months of treatment and has maintained a satisfactory adjustment.

Art Therapy

JAMES T. GEOGHEGAN, R.P.N.

Introduction

Creative artistic productions by the emotionally disturbed have long been of interest to those engaged in the practice of psychiatry and allied fields. Pessin and Friedman[5] believe that the most important function of an activity for the mentally ill is the expression of unconscious conflicts which implies a cathartic aspect. Dax[1] also stressed the emotional release and the possibilities for sublimation in artistic creativity. Naumberg[3] states that the use of spontaneous art was seen to be an aid in the development of interpersonal relations. As spontaneity of creative expression expanded, verbalization grew freer and insights became more frequent. Lehmann and Risquez[2] made use of the finger paintings of schizophrenics and other psychotics in the evaluation of therapeutic results. They found that energy output, contact with reality, affective range and clarity were correlated with clinical course. The purpose of this paper is to report on the use of art therapy in an out-patient setting over a three year period.

The art therapy group of the Mental Health Clinic in Moose Jaw, Saskatchewan was started in 1956. The group consisted then, as it does now, of out-patients from the Mental Health Clinic, ex-patients discharged from the psychiatric ward and several patients from the ward itself. The group numbers about 20 but attendance varies from 13 to 32 patients. A total of 50 patients attended over the three year period. Diagnostically, they consisted of 16 psychotics, 6 organic psychosis, and 28 psychoneurotics. The professional staff attending were one or two psychiatrists, an art therapist, and a social worker.

The group meets every Tuesday evening from October through May. The evening is split up to give one hour to art therapy, one-half hour for a film dealing with mental health, followed by coffee and an hour of group therapy.

From Psychiatric Department, Union Hospital, Moose Jaw, Saskatchewan, Canada.

Procedure

During three years of art therapy our primary goal has been spontaneous activity for most of the patients. However, technical and artistic skill has been emphasized, for the resulting gratification from their creative work strengthens their ego function. In addition to the therapeutic effect of the art therapy, social integration is aided by their working in a group.

The various organizational problems including the differential use of various media, the technical problems of painting are handled by the art therapist. Various media have been used, finger painting, charcoal drawing, poster paints and lastly casein paint. Casein paint is liked best because it is easily used and gives a finished appearance to the painting which closely resembles oil painting. The standard eight colors used are black, white, red, orange, brown, blue, green and yellow. Variations of these are made as needed.

Results

Some patients approach their colors and materials with the hesitant anxiety so characteristic of their customary every day patterns of behavior. Their color choices are restricted to the safer, black brown or blue. They reveal their personality constriction and uncertainty by not daring to open up with the bolder reds, oranges and yellows. Psychologically healthier subjects, by contrast, plunge more deeply into their task confidently employing the warmer colors, thus reflecting their greater self-assurance in the emotional areas that the colors represent. On the other side of this healthy range are those patients who use a clash of inharmonious colors. Turbulent emotions and jarring inner needs characterize the state of these patients.

An inhibited use of color is shown by peo-

ple unable to make warm, sharing personal relationships freely. A more expansive use of color, particularly an unconventional employment of colors occurs most frequently in those showing an inability to exercise adequate control over their emotional impulses.

Regarding the symbolic meanings of the individual colors, the use of reds and yellow is a more spontaneous form of expression than emphasis on the blues or greens, which are more representative of controlled behavior. Black and brown are more common to states of inhibition and depression. Emphasis upon yellow is significant as an expression of hostility and aggression. Considerable use of purple may be significant of strong power—striving drives. Considerable use of white is usually interpreted as indicating asocial attitudes.

From a clinical evaluation point of view the therapy produced beneficial results. Most improvement occurred in the psychoneurotics. Table I indicates the results obtained.

TABLE I

Diagnosis	Much Improved	Improved	No Change	Total
Psychoneurosis	10	18	–	28
Psychotics	8	4	4	16
Organics	—	4	2	6
Total	18	26	6	50

Much Improved = No further psychiatric treatment required.
Improved = Functioning at a much higher level but still requiring psychiatric support.
Not Improved = No change noted in relationship to their previous behavior.

Discussion

Art as a means of expression is safe, in that it cannot bring retribution as the spoken word can. When one talks, the tone of voice, phrasing and subject matter, are combined to give an impression of the personality behind the voice. The same thing holds true for art. When one paints, the colors needed, the texture and detailing of the work and the subject matter combine to give an impression of the personality involved. It must be recognized that man's basic thoughts and feelings reach expression in images rather than in words. By means of pictorial projection, art therapy encourages symbolic communication between the patient and the therapist. The images conjured up may deal with the data of dreams, fantasies, day dreams, fears, conflicts and childhood memories. Art therapy is based on the premise that every individual has a dominant capacity to project his inner feelings into visual form. With the help of such pictured records, a therapy finds, in lasting form, the recollection of inner experiences and so the patient is better able to observe and grasp objectively, changes that have occurred during the therapy.[4] Art therapy is ego-syntonic in that it gives a feeling of achievement and enhances self esteem. As this therapy was conducted in a group setting, group feeling was enhanced and socialization promoted.

Here in one setting both aspects of therapy was carried on. Art therapy dealing with the individual conflicts and the group session dealing with the problem of socialization mainly. These two approaches resulted in a marked reduction in anxiety and tension and improvement of group cohesiveness and behavior patterns.

Summary

This year an exhibition of the paintings of the group was held for one week at the public library with beneficial effect for the patient and the public.

Acknowledgments: The active assistance and cooperation of Dr. E. C. McDonagh of our Psychiatric Department, who initiated and supervised this project, is gratefully acknowledged.

BIBLIOGRAPHY

1. Dax, T. C.: The Creative Activities in Mental Hospital Treatment. *Med. J. Australia,* 1955, 42, 57.
2. Lehmann, H. E., and Risquez, F. A.: The Use of Finger Paintings in the Clinical Evaluation of Psychiatric Conditions, A Quantitative and Qualitative Approach. *J. Ment. Sc.,* 1953, 99, 763-77.
3. Naumberg, M.: Schizophrenic Art—Its Meaning in Psychotherapy. New York: *Grune and Stratton,* 1950.
4. Naumberg, M.: "Art Therapy: Its Scope and Function": The Clinical Application of Projective Drawings. 1958—*Charles C. Thomas,* Springfield, Illinois.
5. Pessin, J., and Friedman, I.: The Value of Art in the Treatment of the Mentally Ill. *Occup. Ther.,* 1949, 28, 1.

A New Technique of Combined Metrazol-Succinylcholine Convulsive Therapy

LOUIS J. PADULA, M.D., and EDWARD J. KOMORA, M.D.

A technique and case report on the combined use of metrazol and succinylcholine as a method of inducing convulsive seizures was presented by us at the first general meeting of the Eastern Psychiatric Research Association and published in the Monograph Supplement of this journal's issue of August 1957. We presented evidence of the efficacy of metrazol-induced seizures in the treatment of mental disorders as well as evidence of the increased safety provided by the use of succinylcholine with this convulsant. Murray's report was also cited and we refer readers to Murray's report as well as to our own for fuller details of our rationale and technique.

In the present communication we wish to report briefly on the addition of a new step to the technique, namely the use of Pentothal as a narcotizing agent. In working out our procedure originally we had attempted to induce seizures on the Pentothal-narcotized patient and had found that the combined use of atropine, Pentothal, succinylcholine and metrazol failed completely in convulsive effect. What seemed to happen was a pharmacological antagonism between Pentothal and metrazol, somewhat similar to that which occurs when concentrated glucose is given intravenously to the unconscious insulinized organism. Our patients, narcotized by the Pentothal, quietly and without any significant agitation, regained full consciousness within a moment or two following the metrazol injection which never exceeded 10 to 12 cc. and sustained no seizures. It would have appeared as if the patient had been nothing but a brain-muscle preparation serving as a laboratory re-agent to demonstrate the pharmacological barbiturate-metazol antagonism. There was a misfiring of the convulsive effect but not of the analeptic. La Verne has postulated a mechanism of therapeutic efficacy to metrazol involving physiochemical factors alone and dissociated from convulsive sequella. A procedure, essentially duplicating what we had considered only as a misfiring of the intended convulsive effect was recently reported by La Verne in conjunction with Padula, promising clinical results comparable to those ensuing on seizure.

More recently, Padula, working alone, found, in instances where the 8 to 12 cc. of metrazol did not result in the usual prompt analeptic or rousing effect, that the continuing injection of additional amounts of metrazol brought the patient to the point of a seizure. This was precisely the effectuation of our plan for an ideal pattern of convulsive seizure made possible by the dreaded metrazol, provided that the amount of metrazol was not restricted to the hitherto accepted limits of dosage. We accordingly revived our original plan and added the simple modification of increased dosage of the metrazol. Up to the present we have not had any patient, in whom narcotization amounted to a state of sleep, yet none had reported experiencing any awareness of the sensations characteristically attendant on administration of succinylcholine or of metrazol to a conscious subject. We make this point since close observation of the patient during the actual administration of the pharmaceutical agents reveals that the analeptic phase of the metrazol effect is traversed on the way to the stage of seizure. However, it would seem that the transit through the analeptic phase or state of arousal is not of sufficient duration for consciousness to have organized sensory events into recallable impressions. To all intents and purposes the conscious stage has been by-passed.

The technique is as follows: After the administration of the atropine, Pentothal is pushed to or almost to the point of complete narcosis or anesthetic sleep at a careful, measured rate of about 2 to 4 cc. per minute until 6 to 8 cc. has been introduced. Sub-

sequent amounts are given at half this rate and with a constant attention to the patient's altering state of consciousness signalled by ability to respond to verbal stimulation, yawning, and the onset of respiratory automaticity. The yawn, which almost always occurs, usually indicates the imminence of the respiratory change characteristic of sleep. Terminating the Pentothal injection two to three seconds after the yawn, if it occurs, insures this stage of sleep and its duration. The Pentothal syringe is promptly detached and replaced by that containing the precalculated amount of succinylcholine which is given rapidly. The metrazol syringe is immediately substituted. The metrazol is not given with forced speed, but with a measured rate slightly faster than the Pentothal until the amount given has equalled the preceding amount of Pentothal. The rate is then appreciably slowed until convulsive flickerings and tremors begin to occur. Within one to two seconds after their onset the injection is halted and the needle withdrawn. The tremors will quickly accelerate and merge into the full seizure pattern, typically attenuated to a degree commensurate with the amount of succinylcholine given. Following cessation of the convulsive movements, sodium amytal grs. 3¾ to 7½ may be given to eliminate post-convulsive and waking excitement.

We are prompted to make this report even though our series of cases is still small, only fifty patients, for two reasons. Firstly, a majority of our patients were of the electroshock refractory type who had shown dramatic improvement with metrazol as was noted in our earlier paper. Secondly, an opportunity to envision for the apprehensive patient an effective modality of treatment as nothing more than the induction of a pleasant narcotization or sleep. This is a boon to the therapist as well as to the patient and one which one cannot avail oneself of too soon.

A last circumstance should be mentioned. A number of patients reported symptoms of nausea occurring some time after the treatment. We are not sure that this is a metrazol effect. In any event we are currently working with a new convulsive agent, injectable in the manner of metrazol and seeming to be unaccompanied by any emetic side effect. Further study may yield results conclusive enough to warrant a clinical report.

Summary

1. A brief restatement of a previously reported method of safe metrazol-induced convulsive therapy is given.

2. An improvement of this method consisting of addition of prior narcotization and alteration of metrazol dosage is given and its advantages cited.

3. The improved technique is briefly described.

REFERENCES

1. Komora, E. J., and Padula, L. J.: Combined Use of Metrazol and Succinylcholine in the Treatment of Mental Disorders. *Dis. Nerv. Syst.*, Monograph Supplement, Vol. XVIII, p. 21, July 1957.
2. Murray, N.: Metrazol Therapy with Succinylcholine Chemoplexy. Texas Report on Biology and Medicine, 13: 446-453.
3. La Verne, A. A., and Padula, L. J.: Narco-Stimulation. *Dis. Nerv. Syst.*, Vol. XIX, p. 534, December 1958.

THE HOFHEIMER PRIZE

This prize of $1,500 is awarded annually by The American Psychiatric Association for an outstanding research contribution in the field of psychiatry or mental health which has been published within a 3-year period up to the date of the award. Studies in press or in preparation are not eligible for this award.

This competition is open to citizens of the United States and Canada who were not over 40 years of age at the time the study was submitted for publication; or to a research group whose median age does not exceed 40 years. The next award will be made at the annual meeting of the Association in May 1961. Entries submitted to the Prize Board before March 1, 1961. will be considered. It is imperative that eight reprints or duplicated copies of each entry as well as the necessary data concerning age and citizenship be sent to David A. Hamburg, M.D., Chairman, Hofheimer Prize Board, National Institute of Mental Health, Bethesda 14, Maryland. All entries are independently evaluated by each member of the Hofheimer Prize Committee and final selection determined by equal vote.

Use of Deanol with Disturbed Juvenile Offenders

JOHN C. MEBANE, M.D.

Deanol[2] is a new type of central nervous system stimulant which differs pharmacologically from the amphetamines and the monoamine oxidase inhibitors. It is the tertiary nitrogen analogue of choline, probably a precursor of acetylcholine. According to Pfeiffer, et al.,[1] it is able to pass through the blood-brain barrier, whereas choline is able to do this to a more limited extent. Recently, deanol has been identified as a constituent of normal human brain.[2]

Previous studies[3,4] have indicated that deanol is a useful addition to our therapeutic armamentarium as a relatively mild, physiologic type of central nervous system stimulant which is very low in toxicity. In adult patients it is often beneficial in milder depressions, chronic fatigue states, and vascular headaches. Oettinger[5] and Tobias[6] have reported deanol to be useful in the treatment of behavior disorders in children, and to offer advantages over the amphetamines because of deanol's longer duration of action and lack of disturbance of appetite and sleep. Although Oettinger did not find deanol to exceed the degree of improvement found with amphetamine, he reported that his subjects showed a decrease in overactivity, a lengthening of the attention span and a decrease in irritability.

Previous findings suggested that deanol might be worthy of trial with disturbed juvenile offenders. Such a patient population was available at the Los Angeles County Juvenile Hall, and the following is a report of administration of deanol to 24 subjects of both sexes ranging in age from 6 to 17, and averaging 12 years of age. The majority of cases displayed conduct disorders of adolescence; a few showed recognizable organic brain syndromes; a few were cases of mental deficiency. A question of particular interest was whether deanol in high doses might show a reversal of action, i.e., calm hyperactive, aggressive adolescents and render them more approachable.

In beginning administration of deanol, it was explained to the patient that the medication might make him feel better, provide more energy, and a better mood. This brief discussion served to create an expectant, positive attitude in these patients, many of whom were hostile toward any type of psychiatric treatment. Deanol was begun in daily doses of 50 mg., increased by 25 to 50 mg. weekly, reaching a maximum of 200 mg. per day in a few cases. The observations reported here ranged over a period of two to eight weeks. Deanol's effect built up gradually during the first several days of treatment and diminished in the same manner when the drug was discontinued.

In general, the subjects tolerated deanol well. In one instance, the drug was discontinued when a transient maculopapular rash appeared on the back and shoulders without other physical findings or complications. In those patients who were able to tolerate higher dosages over longer periods of time, increased muscle tension and a keyed-up feeling usually developed. This, in time, became unpleasant and was often reflected in reports by the counselor in the confinement units of instances of disturbed behavior. There was no noticeable interference with appetite, bowel function or sleep and, in general, sleep may have been improved.

Therapeutic Results

The effectiveness of deanol was judged by the patient's subjective description of his feelings, together with regular observations by unit counselors and the author. In this series of 24 patients there was no benefit or an increase in difficulties in eight cases. Twelve cases showed mild improvement. In five of these there was improvement at a lower dosage, with aggravation of symptoms and behavior when the dosage was increased above 50 to 75 mg. per day. In four cases

The deanol used in this study was furnished through the courtesy of Riker Laboratories, Inc., Northridge, California, under the trade name of Deaner.

there was marked improvement which the subject and his unit counselor recognized. Three patients were given matching placebo tablets following deanol. One patient maintained marked improvement while receiving placebo, another was worse after one week of placebo; the third showed no change with either placebo or drug. It is noteworthy that three patients with enuresis showed definite improvement with deanol. This is particularly significant in view of Oettinger's finding that five enuretic children showed complete freedom from this problem while on deanol.

As might be expected when one is evaluating the effectiveness of drug therapy with juvenile offenders, there was often an appreciable discrepancy between the way the patient described himself and the counselor's report of his behavior. The patients described their response to deanol in the following terms: "out-going, talkative, cheerful, sleep better, get mad easier, more relaxed, out of my shell, keyed up, calms me, but makes me think too much." A change from withdrawn behavior to outgoing and aggressive activity was not always an advantage for those charged with keeping the patients in confinement.

Conclusions

It may be stated that deanol is a useful drug in selected instances of adolescent behavior disorder. The power of suggestion invoked by the manner of introducing the deanol cannot be ignored. The results obtained in this difficult group however, seemed to exceed that to be expected with placebo therapy. Its value was greatest in patients who reported disturbing ego-alien symptoms in the nature of fatigue, depression and social withdrawal. These indications agree with those already established for adults. The optimum daily dose appears to be about 50 mg. daily. In juvenile offenders, the stimulating effect on the patient in a restricted setting was not always in the direction of greater manageability. A favorable response to deanol seemed to be, in a short-term study such as this, dependent upon the ego's capacity to channel the drug's influence constructively. Deanol was not helpful in rendering disturbed, aggressive and rebellious juvenile offenders more manageable or accessible for psychotherapy. The possible value of this drug in the treatment of enuresis certainly deserves further study. The ease with which deanol is administered and tolerated, and the physiologic nature of its action also commend it for long-term studies of the developing and defective ego.

6753 Hollywood Boulevard, Los Angeles, Calif.

BIBLIOGRAPHY

1. Pfeiffer, et al.: *Science,* 126: 610, September 27, 1957.
2. Honegger, C. G., and Honegger, K.: *Nature,* 184: 552, August 15, 1959.
3. Moriarty, J. D., and Mebane, J. C.: *Am. J. of Psychiat.,* 115: 10, 941, April 1959.
4. Moriarty, J. D., and Mebane, J. C.: *J. Neuropsych.,* I: 1, 26-28 (Sept.-Oct. 1959).
5. Oettinger, L.: *J. Pediat.,* 53:671, December 1958.
6. Tobias, M.: *Am. Pract. & Digest of Treat.,* 10: 1759, October 1959.

A Joint Meeting Held in Tokyo Japan

(Eastern Psychiatric Research, the Kanto Neuropsychiatric, and the Japan Mental Hospital Associations)

Introductory Remarks

HARUO AKIMOTO, M.D.†

This joint meeting of the Kanto Neuropsychiatric Association and the Japan Mental Hospital Association with visiting members of the Eastern Psychiatric Research Association is indeed noteworthy as it offers an opportunity to discuss research and studies in psychiatric treatment carried on independently in such widely separated geographical areas in scientific considerations and results so close together.

Historically the use of electrotherapy was developed in Japan and in Italy at about the same time. In 1938 Drs. Mukasa and Yasukochi in the psychiatric clinic at Kyushu University introduced the use of electroconvulsive therapy. Since that time electrotherapy has been widely used here, and many studies have been done on its effectiveness, indications, side effects, mechanisms of action and the electroencephalographic and histopathological changes involved. Unfortunately reports of these studies were published largely in the Japanese literature, and are not well known in other countries. Although use of electrotherapy has been reduced by the development of pharmacotherapy, the value of electrotherapy is well established.

We, in Japan, have also endeavored to avoid the muscular convulsion by the combined use of muscle relaxants and anesthetics. However, many of our psychiatrists risk the dangers of accidents as they have doubts as to the effectiveness of electrotherapy without convulsion. Therefore it is very instructive for us to learn of the practical experience of electrotherapy without convulsion.

Interesting, also, is the comparison between electrotherapy and pharmacotherapy and the combined use of both therapies.

Advances in psychiatric training in the United States is a matter of deep concern for us because the need for adequately trained psychiatrists in Japan is keenly felt. The important point is not a mere increase in number but the development of psychiatrists equipped with a broad knowledge of psychiatry and high professional standards. To meet these needs a well-organized psychiatric training program is urgent. I hope that today's meeting will provide suggestions toward solution of this important problem.

These meetings are valuable in yet another direction. The meeting and exchange of views by psychiatrists from both countries engaged in the same field of work, will promote friendship, cooperation and understanding among the participants and between the countries. These ties, I am sure, will be close and lasting.

Further I hope that our friends from the United States will find beauty in visiting our old temples and seeing the traditional art in the old cities of Nara and Kyoto, and that as psychiatrists our friends will understand the classical connotations of the new aspects of Japan represented by the intellectual class and younger generation.

A joint meeting between the Japanese Society of Neurology and Psychiatry and American Psychiatric Association is scheduled for 1963 in Tokyo. I earnestly hope that the American doctors, who are present today, will return to Japan on that occasion as old, trusting, understanding friends.

Papers presented at the Japanese meeting of the world tour of the Eastern Psychiatric Research Association are being published in the November and December issues of *Diseases of the Nervous System*.

†Professor of Neuropsychiatry, School of Medicine, University of Tokyo.

Clinical Experiences with MAO Inhibitors

HARUO AKIMOTO, M.D., MASAFUMI NAKAKUKI, M.D.,
and YUKITERU MACHIYAMA, M.D.

One of the first substances used in the pharmacotherapy of depression was iproniazid. Although effective in the treatment of depression, its use was discontinued on account of many unfavorable side effects. However, if monoamine oxidase inhibition and antidepressive activity are related, research in drugs of this kind will contribute to clarification of the etiology of depression. Recently we have experimented with two monoamine oxidase inhibitors, Catron and Niamid, which are said to have therapeutic value without uncomfortable side effects.

We would like to compare the clinical effects of these drugs with that of the potent antidepressive drug, Tofranil.

Material and Method

Our subjects were largely ambulatory out-patients whose symptoms were relatively mild. We had two years' experience in 163 cases with Tofranil. With Catron 10 months (66 cases) and with Niamid only three months (20 cases). Since we had little experience with Niamid we could report only general impressions of this drug.

The initial dosage of Catron was 12 mg. in the morning. After one or two weeks and after clinical effects had been observed the dosage was reduced to 6 mg. and then gradually decreased further. With Niamid, the initial dosage was 75 to 100 mg. in divided doses, and the dosage was gradually reduced to a minimum maintenance dosage with full therapeutic benefit. Tofranil was administered orally at 75-100 mg. and the dosage was gradually increased to 150-400 mg. and then decreased.

Results

We divided depressions into five diagnostic groups: Endogenous depression including manic-depressive psychosis and periodic depressions; reactive depression; involutional depression, consisting of cases where there have been no depressive episodes prior to the involutional period; a depressive state on the basis of character disorder; lastly atypical depression with unclassified clinical state and sometimes bearing a similarity to schizophrenia.

The effects of the drugs are rated in five grades: +++ means complete remission, ++ is marked improvement, + is partial but inadequate improvement, 0 is no effect, and — means the cases which showed aggravation.

As seen in Table I, both Tofranil and Catron brought remission in 20% to 30% of cases. If both +++ and ++ are regarded as clinical improvement, the improvement ratings are be-

TABLE I

Therapeutic Results of Catron, Tofranil and Niamid by Diagnosis

CATRON *Diagnosis*	+++	++	+	0	—	Total
Endogenous depression	7	10	4	2	2	25
	(68.0%)					
Reactive depression	2	4	1	1	0	8
	(75.0%)					
Involutional depression	0	2	1	0	0	3
	(66.7%)					
Depression with character disorder	0	0	0	2	0	2
	(0%)					
Atypical depression	0	0	0	1	2	3
	9	16	6	6	4	41
	(60.9%)					
TOFRANIL						
Endogenous depression	22	37	10	12	3	84
	(70.2%)					
Reactive depression	2	7	3	8	0	20
	(45.0%)					
Involutional depression	4	2	2	4	1	13
	(46.1%)					
Depression with character disorder	0	1	1	2	0	4
	(25.0%)					
Atypical depression	0	1	2	0	0	3
	(33.3%)					
	28	48	18	26	4	124
	(61.3%)					

NIAMID	+++	++	+	0	—
Endogenous depression	1	2	3		2
Reactive depression		1		1	
Involutional depression		1			
Depression based on character disorder		1		1	
Atypical depression			1		
Unclassified			2		
Cardiac neurosis		1			
Depersonalization				1	
Hypochondria			1	1	2

From Department of Neuropsychiatry, University of Tokyo, School of Medicine, Tokyo.

tween 60% to 70%. In general, Tofranil is more effective than Catron. In the cases of Catron, there is not much difference among the results of endogenous, reactive and involutional depression. It should be mentioned that two cases of reactive depression were improved by Catron, after proving refractory to other treatments. This gives the impression that Catron is the most effective drug for reactive depression, although the number of our cases is not large enough to draw a conclusion. On the other hand, Tofranil proved to be most effective for endogenous depression.

In order to know the effect of drugs on many clinical symptoms, we classified our cases according to the symptoms in the foreground. In Table II the simple type is characterized by clinical features of depressive mood and inhibition. This type is most often observed. The second anxiety type, also, has depressive mood, but anxiety is more prominent. The third inhibitory or apathetic type is manifested by inhibition with little depressive mood or mood fluctuation. Some patients of the third type were very difficult to differentiate from schizophrenia. The fourth is neurasthenic depression with predominant neurasthenic features. The fifth is the depression with many nervous or hypochondriac complaints and also neurotic anxiety.

In Catron treatment, anxious, neurasthenic and neurotic type responded to the drug better than the simple type. The apathetic type with the clinical state similar to schizophrenia, showed no response to Catron, in fact, in some cases we noticed aggravation of the symptoms.

Tofranil seems to be most effective for the simple type of depression. It is also effective for the anxiety type but in some of these cases we observed aggravation of anxiety. The neurotic and neurasthenic type of depression do not seem to be helped by Tofranil.

In summary we can say that the target symptoms for the use of Tofranil are the primary symptoms of depression—a depressive mood and inhibition. On the other hand, Catron is most effective on the secondary or reactive symptoms of depression—anxiety, restlessness, over-concern about minor things.

When the mental condition becomes resistant to Tofranil, the addition of Catron often brings the patient to complete remission. Especially in the anxiety depression, the combination of these two drugs is very effective.

As to the effect of Niamid, we can only give our general impression. It seems that it is effective for the simple type of depression, irrespective of diagnosis, but not as effective for the neurotic type. It seems to have different action from Catron, and to lie somewhere between Tofranil and Catron (Tables I and II).

Side Effects

We found side effects of Tofranil to be about what other investigators reported: dryness of mouth, sweating, night-sweats, palpitation, sleepiness, dizziness, disturbance of optic accommodation were most often observed. With Catron about 10% of patients developed loss of appetite, insomnia, dryness of mouth, and feeling of pressure on the head (8%) and orthostatic dizziness (6%). The well-known disagreeable side-effect of MAO inhibitor is liver damage. We experienced three cases of jaundice in our 66 cases of

TABLE II

Therapeutic Results of Catron, Tofranil and Niamid by Clinical Type

CATRON *Type of Depression*	+++	++	+	0	—	Total
Simple type	5	3	3	2	1	14
	(63.4%)					
Anxiety type	2	2	1	0	0	5
	(80.0%)					
Inhibitory or apathetic type	0	1	1	4	3	9
	(11.1%)					
Neurasthenic type	1	1	0	0	0	2
	(100.0%)					
Neurotic type	1	9	1	0	0	11
	(95.9%)					
	9	16	6	6	4	41
	(60.9%)					
TOFRANIL						
Simple type	18	29	6	3	0	56
	(83.9%)					
Anxiety type	7	8	4	5	3	27
	(55.5%)					
Inhibitory or apathetic type	3	6	8	6	0	23
	(39.1%)					
Neurasthenic type	0	1	0	3	0	4
	(25.0%)					
Neurotic type	0	4	0	9	1	14
	(28.5%)					
	28	48	18	26	4	124
	(61.3%)					

NIAMID	+++	++	+	0	—
Simple type	1	5	3		
Anxiety type			1		
Inhibitory or apathetic type			1		
Neurasthenic type				1	
Neurotic type			1	1	

Catron treatment. At first we worried that the jaundice might aggravate the depressive state. However, the patient experienced comfortable and happy feelings during jaundice and one case of chronic reactive depression of five years' duration recovered completely after this jaundice.

With Niamid we observed little side effect, but further investigation of this drug is necessary.

Comment

What are the psychological implications of these drugs? MAO inhibitors are classified as a kind of stimulant or psychoanaleptic substance, and Tofranil is thought to be a thymoleptic substance. However, our data shows that Catron is also effective for anxiety and restlessness.

In cases of depression with anxiety, some investigators reported that Catron could cause aggravation of anxiety. This is true for schizophrenic anxiety. However, in our ambulatory mildly depressed patients, the anxiety has responded very well to Catron. This difference of result may be based on the dosage of Catron and the severity of patients' symptoms.

In the initial stage of Catron medication, tiredness and sleepiness were often experienced by patients, followed by elevation of mood and increased psychic activity. This dual phasic effect is similar to that of Tofranil. Catron seems to have a depressant factor as well as being a stimulant.

There are many differences between Tofranil and Catron in their effects. In the clinical course of Tofranil therapy (Tables II and III) improvement of depressive mood is the initial sign, and then follows release of inhibition and change of mental attitude.

In Catron therapy alleviation of anxiety is the initial sign, then improvement of inhibition. The depressive mood is most resistant to the drug. In this way the dissociation of the symptom is common in the course of the Catron treatment. The patient becomes quiet and can talk to people more freely and his objective status seems to be better, yet his subjective feeling continues to be pessimistic and depressive. A dissociation of subjective and objective symptoms is observed.

Another difference between these drugs is that in Tofranil treatment the clinical condition improves gradually. With Catron the course is more complicated and shows many fluctuations.

We have had some experience with these drugs on other conditions. These results seem to show the characteristic effects of each drug (Table IV). Both drugs have little or no effect on obsession neurosis, depersonalization and schizophrenia, all of which have more psychotic character in many aspects than neurotic reactions. However, the effect of Catron on anxiety neurosis is better than that of Tofranil. In fact, Tofranil induced aggravation of anxiety in some instances. This is compatible with the conclusion that Catron is effective for depression with reactive neurotic components.

Let us see the effect of Tofranil on the manic state. We have observed that during Tofranil treatment some depressive patients showed a prompt reversal of symptoms from depressive to manic state. What does this reversal mean? Is

TABLE III

Clinical Course of Improvement

CATRON

1. Alleviation of Anxiety (neutralization).
2. Improvement of Inhibition (stimulation).
3. Improvement of Depressive Mood.

TOFRANIL

1. Improvement of Depressive Mood.
2. Improvement of Inhibition.
3. Improvement of Mental Attitude.

TABLE IV

Effects of Catron and Tofranil on Neurosis and Schizophrenia

CATRON *Diagnosis*	+++	++	+	0	—	Total
Anxiety neurosis	1	8	3	0	1	13
Cardiac neurosis	0	1	0	0	0	1
Neurotic nocturia	0	2	0	0	0	2
Obsession-neurosis	0	0	2	1	0	3
Depersonalization	0	0	2	1	0	3
Depressive state in schizophrenia	0	0	2	0	1	3

TOFRANIL	+++	++	+	0	—	Total
Anxiety neurosis	0	1	1	0	1	3
Depersonalization	0	0	1	2	0	3
Obsession-neurosis	0	0	0	2	0	2
Nervous sleep disturbance	0	0	0	0	2	2
Depressive state in schizophrenia	0	1	5	6	1	13

TABLE V

The Effect of Tofranil on Manic States

	+++	++	+	0	—	*	Total
Manic-depressive psychosis (manic phase)	3	2					5
Periodic mania		3	1				4
Monophasic mania	1			1			2
Atypical manic state	1	1	3	1		2	8

*: The cases which showed the reversal from manic to depressive state.

it a simple paradoxical reaction or does it mean the reversal from the depressive to the manic phase? To find an answer, we investigated the effect of Tofranil on the manic state (Table V). We observed that typical endogenous manic patients responded well to Tofranil. From the psychological aspect, the improvement does not seem to be based on the reduction of psycho-motor activity, but rather on a basic mood change. Apparently it seems different in its psychological mode of action from Thorazine which has effect on psycho-motor activity.

The efficacy of Tofranil on endogenous depression and mania and the reversal from depression to mania, indicates that effects of Tofranil have some relationship to etiological factors involved in the manic-depressive psychosis. On the other hand, Catron is most effective for treatment of the reactive factor in depression. It must be noted, however, that conclusive proof of any causal relationship between monoamine oxidase inhibition and antidepressive activity is lacking.

Summary

Clinical experiences of pharmacotherapy with Catron and Niamid (MAO inhibitors) and Tofranil for depressed out-patients are reported.

Tofranil seems to be most effective for endogenous depression, Catron for reactive depression with neurotic anxiety. Niamid seems to lie between Tofranil and Catron. Characteristic clinical effects of these drugs are discussed.

Spinal Stimulation in Hemiplegias

SADATAKA TASAKA, M.D., and KAZUO OMURE, M.D.

Rectangular low frequency current was first applied for therapeutic purposes by Leduc in 1902. He generated this current by interrupting a galvanic current supplied through a battery with a revolving interrupter and reported that this current exhibits a narcotic effect when passed through the head. It has since been found that this current is effective in the treatment of neuralgias and paralysis.

In 1944 Iozumi and Takegoshi devised a rectangular low frequency current generator and applied it to various peripheral paralysis and neuralgias and they observed that in contrast to the classical electrical therapy based on Pflüger's electrotonus, cathodal current is more effective in neuralgias. This is in accord with the third electrical action theory advanced by Suzuki. The hypothesis here is that the threshold increases under the cathode and decreases under the anode. The therapeutic value of this current in neuralgias and peripheral paralysis was advocated by many since then, but the clinical advantage of this current for treatment of cerebral paralysis was not given much attention.

While analyzing the electromyographic records of paralyzed muscles in hemiplegias taken before and after electrification with this current, it was noticed that the spike discharges of maximal voluntary contractions increased more remarkably when electrodes were placed on the back of the neck and buttocks. On the basis of this finding, electricity was applied in this manner in hemiplegias and observations of its clinical effects were recorded with a hope it might be useful as a therapeutic modality.

Method of Application: A round electrode pad of 5 cm. diameter was placed on the back of the neck and a rectangular electrode 9 x 12 cm. was placed on the sacral region, the patient being in supine position. The electrodes were then connected to a rectangular low frequency current generator, as mentioned above. The neck electrode to the positive pole and 4-6 of a current, with frequency between 150-1000 c/s was passed through for a period of about 45-60 minutes. This procedure was followed approximately two times per week with 184 hemiplegic patients. Clinical examinations were performed before and after each treatment up to the third and thereafter at every fifth treatment.

From Tasaka Clinic, University of Tokyo, Tokyo.

Results

1) *Clinical results in the field of motor disturbance:* Some improvement of finger-movement was observed in 74.6% of 142 cases; remarkable improvement in 57.8%. Improvement of arm-movements was observed in 73.9% of 138 cases, and improvement of paralysis of the lower extremity was recognized in 86.9% of 145 cases. The number of severe paralysis decreased after electro-stimulation. Remarkable improvement was also noticed in severe forms of paralysis which at first were judged as clinically hopeless. Slight motor disturbances of the arm were relieved completely in 14 of 138 cases; and motor disturbances of the lower limb recovered in 7 of 145 cases.

2) *Results in the field of sensory disturbance:* This type of electric application proved also effective in the improvement of the sensory disturbances which accompanied the paralysis. Tactile sensation improved in 75.5% of 106 cases, remarkable improvement was observed in 10%, and complete recovery in 23.6%, but two pa-

tients complained that the hyesthetic area became hyperesthetic. There was some improvement also in other types of superficial sensory disturbances. Slight disturbances often recovered completely with 2-3 applications and even severe ones improved. Paresthesias increased, however, in two cases, but subsided in 30 of 45 cases treated. Spontaneous pain in the involved limb subsided in 14 out of 18 cases, and pain provoked by movement diminished in 21 out of 24 cases treated. Deep sensation improved in 43% of 38 cases.

3) Spasticity and contractures were observed to have decreased after 5 to 10 "electrifications." Severe contractures of the involved limbs were seen to improve considerably in a few cases.

4) Speech difficulties improved in 56.9% of 109 cases. Complete recovery occurred in 5.5% (most of these cases were mild ones). Marked improvement occurred in 2.7% (majority of cases were severe).

5) Improvement was also noticed in the emotional and volitional sphere and in the other field where psychogenic symptoms predominated. Anxiety and tension decreased in 29 out of 35 cases; compulsive laughter and crying in 16 out of 18 cases; intellectual impairment disappeared in four cases, and memory defect in two out of four cases. Sleeplessness was reduced in 31 out of 40 cases and headache reduced in 26 out of 27 cases.

Evaluation and results of clinical investigation: No definite influence on the blood pressure, pulse and respiration rate was seen. No significant change was observed in the retinal blood vessels; ECG, venous pressure, capillary resistance, fibrinolysis activity and blood sugar levels were not altered, except for a tendency to eosinopenia after treatment. EEG studies on four patients showed some amplitude difference and a tendency to decrease in two cases. Seventeen ketosteroids and 17 hydroxycorticosteroids were found to increase slightly after the treatment, with a decrease curve an hour later, and return to increase again in most of the cases. The RPF and GFR were found to decrease slightly at first, then increase gradually towards the end of the electrification. Elevation of blood pressure by the injection of adrenaline was suppressed in 8 of 12 cases, and salivation by pilocarpine was accelerated in 7 of 13 cases. Observations of the EMG records of the paralyzed muscles revealed that spike discharges of maximal voluntary contraction increased remarkably and also that discharges began to appear in paralyzed muscles (after the electrification) which weren't able to elicit any before. By studying the interval diagrams of EMG of paralyzed muscles during maximal effort, it was found that the frequency of the discharge increases and that the tendency of frequency adaptation diminishes.

Following treatment the clinical improvement remained constant in the majority of cases after a follow-up study made three months after the end of the study, with no evidence of side-effects.

Summary

Spinal electrostimulations with rectangular low frequency current was found to relieve many of the symptoms often seen in the hemiplegic patient. It was effective in approximately 80% of the motor and sensory disturbances, and in about 57% of the speech difficulties and also efficient for the improvement of mental symptoms, spasticity and other symptoms due to autonomic nervous disorders. Because of the results it was felt that this treatment should be given a trial on every hemiplegic patient.

The effect of cerebral electrification with this current on hemiplegias was found effective, particularly in the mental sphere, where there was spasticity and motor aphasia. The administration of adenosine triphosphate together with these electrifications was also recognized as valuable in the mitigation of these symptoms.

Retrograde Amnesia Provoked by Electroconvulsive Therapy

TAIEI MIURA, M.D., MORIZI OKADA, M.D.,
and MASAO OKAMOTO, M.D.

Impairment of memory as a complication in electroconvulsive therapy is quite common but cases of retrograde amnesia extending to years before the onset of mental illness are rare. K. Schroder[1] reported in 1940 cases of retrograde amnesia due to convulsive therapy with cardiazol. In the next year Fleischer[2] studied this problem in greater detail. In Japan Kurosawa reported a case of retrograde amnesia due to prolonged insulin shock threapy.

In 1959 Suzuki and Yamashita studied similar complications due to electroshock in three schizophrenic patients, two females and one man. Evidence of retrograde amnesia was detected after remission of acute symptomatology. Extension of retrograde amnesia for a span of ten years or more was present in all cases, antedating onset of the schizophrenic illness. However, there was no sign of anterograde amnesia or confabulation

From: Keio Gijuku University School of Medicine, Tokyo, Japan.

and during the period of clinical observation the retrograde amnesia did not show any tendencies toward regression.

Typical Case History

A similar event has recently been observed in a female patient treated in our institute with electroconvulsive therapy. The patient was a 20-year-old female student, born in a remote province. She had been adopted in early childhood and seemed to have shown a great deal of affection toward her adopted mother but mild hostility toward the adopted father. At high school she showed some interest in boys. Following graduation from high school she entered college in Tokyo. A disappointing love affair provoked a strong emotional reaction with some abnormality in behavior. Following a period of psychomotor agitation, she became abusive, assaultive, tense and overanxious. Sleep and nutrition patterns were disturbed. Electroconvulsive therapy was given (four treatments) together with drug therapy (chlorpromazine). Because of insurgent suicidal ideas, she was admitted on February 27th, 1950 to Sankei Hospital with a diagnosis of psychogenic reaction.

At date of hospitalization she was in a state of psychomotor agitation with evidence of depressive signs and mild disorientation. No hallucinations or disturbance of self consciousness were noticed. Electroconvulsive therapy was administered together with chlorpromazine. Improved after a few days, on March 9, 1960 a Rorschach test was given. There was no evidence of definite psychotic signs in the test, only disturbance in the emotional sphere with conflicts especially of libidinal nature.

The patient became worse after March 10th with a relapse into a catatonic state accentuated by negativistic behavior, delusions and visual and auditory hallucinations. This mental condition lasted for about two months in spite of ECT and drug therapies. By the end of April the patient was considered recovered clinically and in normal contact with the environment. However she complained of loss of memory for past events. This loss of memory extended to a period of two years before the onset of her illness.

At present she evidences no anxiety or preoccupation. She is calm, well balanced and determined to recover her memory. She visits places which should be familiar, scans albums of pictures of past events and repeats conversations just heard.

This patient had already received four ECT's previous to her admission to our hospital. Seven more treatments were given while hospitalized, making a total of 11 treatments. The retrograde amnesia is of some extent, going back to a period two years before the onset of her present illness. The only residues left intact at the present are the names of her school, her mother and one of her teachers. She has no sense of chronological sequence. The most intensive loss of memory for events seems to center in the social sphere and in the college area.

Comment

Since this has been considered a case of retrograde amnesia (all tests for organic impairment or deterioration were negative) the question at present is: is this retrograde amnesia provoked by electroconvulsive therapy? Was the number of ECT's (11) given sufficient to produce such a disturbance?

In the three cases of Suzuki and Yamashita many more ECT's were given—76, 58 and 25 treatments respectively were administered. If the damage to memory by ECT is concomitant with and contingent upon the number of treatments received, it is unlikely that only 11 ECT's provoked such an extensive degree of retrograde amnesia. It can reasonably be assumed then that the number of ECT's is not the responsible factor.

Does the nature of mental illness treated with ECT tend to produce the retrograde amnesia? Is the psychogenic reaction responsible for the problem in this case. Although acute schizophrenic process was originally suspected, evolution of the clinical symptomatology and the personality structure and behavior, following clinical recovery, indicated a reactive psychotic episode.

Instances of psychogenic amnesia are common but in our present case the retrograde amnesia was noticed after recovery without any evidence of organic damage. This supports the conclusion that this case is one of retrograde amnesia provoked by ECT in spite of the fact that only 11 ECT's were given.

Summary

In this paper the case of a 20-year-old female student with clinical evidence of a reactive confusional state is discussed. After recovery from her psychic disorder which lasted about two and a half months, evidence of retrograde amnesia extending to a span of two years was noticed. Treatment had consisted of ECT associated with drug therapy. The total number of ECT's was only 11. However, because of the lack of evidence of any other etiological factor, this amnesia was considered an aftermath of ECT.

A Note on the Meeting

During July and August, 1960, a representative group of the Eastern Psychiatric Research Association was on a World Tour visiting Tokyo, Hong Kong, Bangkok, New Delhi, and Jerusalem, participating with the local neuropsychiatric societies in scientific meetings.

The first meeting on July 7 and 8 was held in Tokyo with the Kanto Neuropsychiatric Association and the Japan Mental Hospital Association. At that meeting, ten papers were read; five by members of the Eastern Psychiatric Research Association and five by local neuropsychiatrists.

The meeting was held in the spacious Tojo Kaikan Hall under the joint chairmanship of Professor Haruo Akimoto, Tokyo, and Professor William L.

(Continued on page 652.)

The physician listens to a tense, nervous patient discuss her emotional problems. To help her, he prescribes Meprospan® (400 mg.), the only continuous-release form of meprobamate.

The patient takes one Meprospan-400 capsule at breakfast. She has been suffering from recurring states of anxiety which have no organic etiology.

She stays calm while on Meprospan, even under the pressure of busy, crowded supermarket shopping. And she is not likely to experience any autonomic side reactions, sleepiness or other discomfort.

She takes another capsule of Meprospan-400 with her evening meal. She has enjoyed sustained tranquilization all day—and has had no between-dose letdowns. Now she can enjoy sustained tranquilization all through the night.

Relaxed, alert, attentive . . . she is able to listen carefully to P.T.A. proposals. For Meprospan does not affect either her mental or her physical efficiency.

Peacefully asleep... she rests, undisturbed by nervousness or tension. (Meprospan samples and literature available from Wallace Laboratories, Cranbury, N. J.)

Holt, Albany, New York. It was attended by more than 100 psychiatrists including two United States Army officers stationed in Japan. Most of the papers were read in English. Dr. Yutaka Honda was a most capable translator when the need arose.

We found the Japanese doctors friendly, courteous, and learned, as well as resourceful and ingenious, as in preparing 35 mm slides from our lantern slides on a few hours' notice or in the projection of two slides (two projectors) at a time, an interesting technical innovation. This allowed greater latitude for the speaker, especially when he had to refer back to a previous slide.

Following the meeting we were entertained through courtesy of The Schering Corporation. Although it is customary in Japan that wives do not attend social functions with their husbands, Professor Akimoto and others insisted that we bring our wives to the party.

During our stay in Tokyo we visited the University of Tokyo School of Medicine with its modern research facilities and the Matsuzawa Mental Hospital. We learned much from our Japanese hosts and long to pay them another visit. Many of us will do so in 1963.

—David J. Impastato, M.D.

Saint Joseph Sanitarium

(Supervision of Sisters of Mercy)

P. O. BOX 236 — DUBUQUE, IOWA

or phone 3-8291 for information

Mild Mental and Nervous Cases

also

Convalescent and Rest Patients

Shock Therapy, Hydrotherapy, Physiotherapy, Occupational Therapy.
Competent Staff.

NOW AVAILABLE

LIBRARY VOLUME FILES FOR

Diseases of the Nervous System

In response to frequent requests, we are making available to subscribers a library volume file in which copies of *Diseases of the Nervous System* may be filed and stored. These files may be purchased, embossed with the volume number and year, for $2.00 each, plus 25 cents mailing fee.

PHYSICIANS POSTGRADUATE PRESS
277 BROADWAY - NEW YORK 7, N. Y.

PUBLICATION OF TRANSACTIONS

The Physicians Postgraduate Press announces its service of the prompt and accurate publication of the proceedings of professional meetings.

PHYSICIANS POSTGRADUATE PRESS
277 BROADWAY - NEW YORK 7, N. Y.

GLENSIDE HOSPITAL

FOUNDED 1909

Located in an attractive rural setting in the heart of Boston for the care of nervous, mental and geriatric disorders, alcoholism and drug addiction.

The new Ordway Therapy Unit includes the most modern electrotherapy equipment. Anesthesia by the Hand-Auden Associates and trained personnel available to courtesy staff.

RUTH M. CROSSFIELD, M.D., *Medical Director* DORIS M. HORWOOD, *Superintendent*

6 PARLEY VALE, JAMAICE PLAINS, MASS.
JAMAICA 4-0044 RATES MINIMAL

50 BEDS

HILLCREST HOSPITAL

EST. 1905

(formerly The Retreat, Inc.)
DES MOINES 12, IOWA

For the diagnosis and treatment of Nervous and Mental Disorders in a homelike environment.

Occupational Therapy, Physiotherapy and Shock Therapy
Open Psychiatric Staff

HERBERT C. MERILLAT, M.D., *Medical Director* HERBERT W. VETTER, *Administrator*

PINEWOOD

Dr. Joseph Epstein, F.A.P.A.
Dr. Louis Wender, F.A.P.A.
Physicians in Charge

DR. WALTER A. THOMPSON, F.A.P.A., Clinical Director

Westchester County - Route 100 - Katonah, N. Y. - Tel.: Central 2-3155

A competent sixty bed hospital, psychoanalytically oriented but using multi-disciplinary approach. Patients admitted for "short-term" therapy or more prolonged study. Additional facilities for O.P.D., Day Center Therapy and consultation. Weekly clinical conferences open to the profession. A.P.A. members may receive staff privileges and treat their own patients.

New York City Offices

DR. EPSTEIN—975 Park Ave.—Tues., Thurs., Sat. RH 4-3700

DR. WENDER—59 East 79th St.—Mon., Wed., Fri. BU 8-0580

FAIR OAKS

INCORPORATED

SUMMIT, NEW JERSEY

A fully approved Hospital for intensive treatment and management of problems in Neuropsychiatry

OSCAR ROZETT, M.D.
Medical Director

THOMAS R. PROUT, JR.
Administrator

SANITARIA DIRECTORY

The institutions listed below are among the finest private sanitaria in the United States. They offer private, individual specialized care to the patient.

BALDPATE, INC.
GEORGETOWN, MASSACHUSETTS

BEVERLY HILLS CLINIC AND SANITARIUM
DALLAS 11, TEXAS

ELMLAWN (The Wilgus Sanitarium)
ROCKFORD, ILLINOIS

FAIR OAKS
SUMMIT, NEW JERSEY

FAIRVIEW SANITARIUM
CHICAGO, ILLINOIS

FOREST SANITARIUM
DES PLAINES, ILLINOIS

GLENSIDE
BOSTON 30, MASSACHUSETTS

HALL-BROOKE
GREEN FARMS, CONN.

HILLCREST HOSPITAL
(formerly The Retreat, Inc.)
DES MOINES 12, IOWA

PINEWOOD
KATONAH, NEW YORK

RING SANATORIUM
ARLINGTON, MASSACHUSETTS

ROGERS MEMORIAL HOSPITAL
OCONOMOWOC, WISCONSIN

ST. CLAIR HOSPITAL
DETROIT 14, MICHIGAN

ST. JOSEPH SANITARIUM
DUBUQUE, IOWA

BALDPATE, Inc.

Geo. Fleetwood 2-2131 **Georgetown, Mass.**

Located in the hills of Essex County, 30 miles north of Boston

For the treatment of

psychoneuroses, personality disorders, psychoses, alcoholism and drug addiction.

Definitive psychotherapy, somatic therapies, pharmacotherapy, milieu-therapy under direction of trained occupational and recreational therapists.

HARRY C. SOLOMON, M.D.
Consulting Psychiatrist

GEORGE M. SCHLOMER, M.D.
Medical Director

FAIRVIEW *Sanitarium*

2828 S. PRAIRIE AVE.
CHICAGO
Phone VIctory 2-1650
J. DENNIS FREUND, M.D.
Medical Director

DEVOTED TO THE ACTIVE TREATMENT OF

MENTAL and NERVOUS DISORDERS

Specializing in Psycho-Therapy, and Physiological therapies including:

- Insulin Shock
- Electro-Shock
- Electro-Narcosis
- Out Patient Shock Therapy Available

ALCOHOLISM Treated by Comprehensive Medical-Psychiatric Methods.

BEVERLY HILLS CLINIC and SANITARIUM

210 N. Westmoreland Avenue **WHitehall 3-4651**

Dallas 11, Texas

A private clinic and hospital for nervous and mental diseases both for in-patients and out-patients —stressing a homelike environment with separate building units and special cottages—air-conditioned.

A complete neuropsychiatric diagnostic and treatment center including a department of psychology—encephalography—clinical laboratory and X-ray—psychotherapy—electroshock and insulin coma therapy, as well as psycho-surgery.

ARTHUR J. SCHWENKENBERG, M.D.
JOSEPH L. KNAPP, M.D.
JACKSON H. SPEEGLE, M.D.
Neurology

FRED H. JORDAN, M.D.
HENRY P. HARE, JR., M.D.
LUDLOW M. PENCE, M.D.
Psychiatry

A NEUROPSYCHIATRIC FOUNDATION

THE

ROGERS MEMORIAL HOSPITAL

The Hospital is situated on the Nashotah Lakes, 30 miles west of Milwaukee, providing the ideal, restful country environment and the facilities for the modern methods of therapy of psychoneuroses, psychosomatic disorders, alcoholism, and the other neurologic and psychiatric problems. Occupational therapy and recreational activities directed by trained personnel.

OCONOMOWOC, WISCONSIN

PHONE LOGAN 7-5535

EUGENE FRANK, M.D.
WILLIAM C. JANSSEN
LOREN J. DRISCOLL, M.D.

OWEN OTTO, M.D.
Medical Director

LEROY A. WAUCK, PH.D.
Clinical Psychologist
JOSEF A. KINDWALL, M.D.
Consultant

"the most effective drug against tremor..."[1]

IN PARKINSONISM Parsidol exceeds all other drugs for reducing tremor,[1] a major impairment in this disease. Parsidol also lessens rigidity, brightens the patient's mood and contributes to restoration of self-confidence. Especially well tolerated by older patients,[1,2,3] Parsidol is effective alone, and most patients respond well to a maintenance dosage of 50 mg. q.i.d. Parsidol is compatible with other antiparkinsonian drugs and can be given in combination if so desired.

PARSIDOL®

brand of ethopropazine hydrochloride

PARKINSONISM

WARNER CHILCOTT
MORRIS PLAINS, N.J.

1. Schwab, R. S. and England, A. C.: *J. Chron. Dis. 8*:488 (Oct.) 1958.
2. Schwab, R. S.: *Geriatrics 14*:545 (Sept.) 1959.
3. Doshay, L. J. *et al.*: *J.A.M.A. 160*:348 (Feb. 4) 1956.

PAR-GP04